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Best State Branch Journal Award 2009-10

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President's Message

Dr. Santhosh Sreedhar

First of all let me express my heartfelt gratitude to all my fellow members for elevating me to the highest office of IDA Kerala State for the year 2010-11. My Predecessors have done notable and remarkable activities during their period. In the last IDA year, under the dynamic leadership of Dr. Samuel.K.Ninan and Dr. Shibu Rajagopal, IDA Kerala State stood first in the map of National IDA by bagging the maximum number of National Awards at the State level. Our Journal – KDJ also bagged the Best Journal Award at the National Level. My hearty congratulations to all the office bearers with a special mention to our Hon. Editor Dr. Nandakumar for publishing quality Journal of International repute of regular intervals.

This year also, we should undertake innovative projects and programmes and capture the focus of dental fraternity and the public. This is only possible with meticulous planning, hard work and dedication. To be a successful leader, I anticipate all the assistance and guidance from each and every member of our association. Your creative ideas, positive suggestions and healthy criticism will definitely improve our association activities. Let us all join together to keep the IDA flag high to protect the rights and interests of the members, to foster friendship, co-operation and co-existence among the members and also to preserve the dignity and honour of the dental profession.

The success of any organization depends on membership strength. So we must take measures to see that every qualified Dentist who is on the roll of Kerala Dental Council Register to be the member of IDA Kerala State. We should attract new members, retain current members and at the same time, we should focus on developing quality members. Dedicated and talented members are the strength of any association. The right people in the right position with innovative ideas aided by good leadership will take our association to greater heights.

Our theme for the year is **"Setting Standards and Achieving Excellence"**. Our challenge would be to Involve and Dedicate to Achieve excellence at all levels in our profession as well as in our IDA policy matters. We need to set standards to make our association much more stronger and also our activities more meaningful.

I have in my mind, certain projects and programmes and I require your whole hearted support and cooperation to achieve the goals.

Let us work together for a successful IDA year.

Dr. Santhosh Sreedher
President, IDA Kerala State.

Publications – a realistic approach

Dr. K. Nandakumar

Teaching is a noble profession. No body will question this statement. But while accepting this statement how many of us can claim that we have understood the spirit of it. If the spirit was known to us, we would have behaved responsibly ie. the teacher would have taught the students sincerely, teacher would have read books and journals on a regular basis, teacher would have maintained a thinking habit, thinking would have raised many questions, questions would have become research projects, findings of the projects would have been presented and subsequently published. This a culture to be developed in the academic environment of a department or an institution. So far no body has ever told about all these. In spite of this, a miniscule minority of teachers pursued research. Even the Government did not encourage them. Colleges increased in number and teachers seldom received encouragement to do research. There was no rule that promotions would be made on the basis of merit. All on a sudden, publications have become an essential qualification and that too with so many stipulations: first author, indexed journal, pubmed, recent etc. etc. Naturally these hasty stipulations will not be perceived as a stimulant to promote scientific temper but to stop something else.

When publications were insisted, naturally people thought of bringing out journals. It was a positive sign that this vast country was able to produce hundreds of dental journals. IDA has been publishing national and state wide journals. Many of them were of good quality. If an article is published in those college or IDA journals, it will not be considered as a publication. The fire seen in publishing has been put out by the same agency which could have positively encouraged the spirit. At least fifty journals would have survived the test of time. Instead of taking pride in that fact, DCI snubs them all by branding them inferior. It can never be considered as a positive attitude that an Indian journal should follow American norms if it has to attain the status of a journal. The DCI should screen the journals and give accreditation and advise them on improving standards. Within five years, India will be in a prestigious state that it publishes the maximum number of dental journals in the world. We will have hundreds of articles with pure Indian origin.

First author, second author and third author are equals and they have equally contributed. If it has to be rated, the first five authors have to be given equal credits – one point each. Other authors will get half a point. A professor should have three points in the first year. In the consequent years, the professor should get two points each. Pubmed, Copernicus, Indian citation Indices have to be considered equal otherwise we will lose our self esteem. Authors should strive hard to improve the research standards of our country.

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Paan Chewing

Paan, from the word pa-n (Hindi: पान) is an Indian/ Pakistani and South East Asian tradition of chewing betel leaf (Piper betle) with areca nut and slaked lime paste. There are many regional and local variations. The most commonly found include:

- Tobacco (tambaku paan): Betel leaf filled with powdered tobacco with spices.
- Areca nut (paan supari, paan masala or sada paan): Betel leaf filled with a mixture consisting of a coarsely ground or chopped areca nuts and other spices.
- "Sweet" (meetha paan): Betel leaf with neither tobacco nor areca nuts. The filling is made up primarily of coconut, fruit preserves, rose petal preserve (gulkand) and various spices. It is also often served with a maraschino cherry.
- "Trento" (olarno paan): Tastes like betel but has a minty after taste. Eaten along with fresh potatoes, it is served in most Indian restaurants.

Effects on Health

The International Agency for Research on Cancer (IARC) regards the chewing of betel and areca nut to be a known human carcinogen. The media has reported that regular chewers of betel leaf and areca nut have a higher risk of damaging their gums and acquiring cancer of the mouth, pharynx, esophagus and stomach. Studies have found tobacco and caustic lime increase the risk of cancer from areca nut preparations. Studies exist of the use of a "pure" paan preparation: areca nut, betel leaf, and lime. its smells good. One study found that unprocessed areca nuts, at high doses, displayed a very weak carcinogenicity. In contrast, since 1971 many studies have found areca nut extracts to cause cancer in rodents. In 2003 the International Agency for Research on Cancer (IARC) reached the conclusion that there is sufficient evidence that the habit of chewing betel quid with or without tobacco is carcinogenic to humans. Support is provided by a recent study which found that paan without tobacco is a risk factor for oral cancer. They found paan with and without tobacco increased oral cancer risk by 9.9 and 8.4 times respectively.

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Smokeless tobacco use in India & its health hazards

*** Rathy Ravindran, **Bharath Kalaria, *** Babu Mathew, **** Gayathri Krishnan**

Smokeless tobacco use is an accepted social norm in the Indian subcontinent. This is a very ancient custom which can be traced back to almost 2000 years. The habit of chewing betel leaf, areca nut, slaked lime with spices is known as "Tamboola charvana". There is a mention about the ingredients used for Tamboola charvana in Ashtanga Hridaya.[1] They are betel leaf, slaked lime, areca nut, clove, cardamom, camphor, nutmeg & copra (dry coconut). Narahari, an Ayurvedic physician in Akbar's court was the first person to introduce tobacco decoction as a treatment for gum diseases.[2] Later it was used to treat dentin sensitivity. Slowly, the costly ingredients used in tamboola charvana were replaced by tobacco and during the last four centuries, tobacco became the most important ingredient of tamboola charvana (betel quid chewing). Ever since tobacco found a place among the ingredients of tamboola charvana, this habit has resulted in several oral diseases, the most important being squamous cell carcinoma of the oral cavity.

In different parts of India, different types of tobacco are used for chewing.[3] In South India (Kerala and Tamil Nadu), the common forms used are "Vadakkan", "Japponam" and "Vasana pukayila". In Karnataka, Nipponi tobacco used for making bidis are chewed by men and the powdered tobacco stem of Virginia tobacco, which is very cheap, by women. Around Agra, "Mainpuri" tobacco is mainly used. In central India, Khaini (roasted tobacco mixed with slaked lime) is used. It is placed in the palate or in the labial sulci. Burnt tobacco ash (Mishri) is used for cleaning tooth and for chewing in Maharashtra and Goa. In North West India, snuff is mixed with cotton seed oil, rolled into a ball and kept in the floor of the mouth or undersurface of the tongue. All these different types of tobacco habits are well known to produce lesions in various specific subsites of oral cavity.

The conventional chewing materials consisted of fresh betel leaf, areca nut, slaked lime and tobacco. The fresh betel leaf has a very short shelf life. To overcome this, "paan masala" was invented. Paan masala consists of roasted arecanut, catechu, slaked lime, tobacco & certain weird substances which are guarded as top secret by the manufacturers. Originally paan masala was sold in tins or loose. Towards the last quarter of the twentieth century, paan masala was marketed in sachets containing 3-5 grams of the substance. This has revolutionized the sale of paan masala. Towards the turn of twenty- first century, there were more than a dozen major manufacturers with an annual turnover of more than 100 million rupees. Sales of chewable tobacco worth 210.3 billion rupees in 2004, are on track to double by 2014, according to Datamonitor, a branch of the international research firm based in Hyderabad, India[4]. The increase in consumption of paan masala was reflected in a sharp increase of oral precancerous lesions especially localized submucous fibrosis. In 1968, the prevalence of oral submucous fibrosis among various dental outpatient departments in Bangalore, Chennai, Mumbai, Lucknow & Trivandrum varied between .2% & .4 % [5]. Recent reports from Nagpur, Indore & other North Indian cities have shown a 25-35 fold increase in the prevalence of submucous fibrosis in dental outpatient departments. Recent reports from Regional cancer Centre, Trivandrum show that there is an increase in the number of patients with SMF and squamous cell carcinoma of oral cavity below the age of 35 years[6]. An analysis of this cohort showed that the major etiological factor of oral cancer in youngsters was either paan masala habit, heavy alcohol drinking habit or HPV infection. There was a 17 year old patient registered in RCC, Trivandrum, with carcinoma tongue who was addicted to more than 10 packets of paan masala per day for over 3 years.

When the conventional chewing (using all four ingredients) is done, there is copious saliva secretion and the blood red saliva is almost always spat out. When paan masala is used, many of the habitués keep them in a fixed site in the mouth and do not vigorously chew it. Therefore, the saliva production is minimum and many a time, the nitrosamine containing quid is spat out after 2 or 3 hours only. When a person used paan masala for chewing, pH of saliva was recorded to be about 10 and this critical pH value is significant because when the pH goes above 10, nitrosamines in tobacco leach out much faster

The carotenoids present in betel leaf have got a free radical quenching effect. This neutralizes the action of nitrosamines and other carcinogens on the oral mucosa. Paan masala does not contain any paan! (betel leaf). It contains only the synthetic flavor of betel leaf. This could be the main reason why consumers of paan masala with gutka develop precancerous lesions or conditions much earlier than conventional tobacco chewers. Various studies have shown that paan masala with or without gutka has several genotoxic, clasterogenic, mutagenic and

other toxic actions in humans and experimental animals.. U Nair et al 2004, have postulated causative factors and mechanisms in induction of precancer/cancer due to paan masala and gutka use.

A study by B. Mathew and P.P Nair has published data on the mutagenicity of 23 different popular brands of paan masala[7]. The relative mutagenic risk varied between 0.9% and 13.6%. Sharma AK et al has shown that a single intake of 4 grams of paan masala resulted in acute increase in pulse rate and blood pressure[8]. Sister chromatoid exchange and chromosome aberrations were examined in peripheral blood lymphocytes and the frequency of micronucleated cells was scored in exfoliated buccal mucosa cells of paan masala and gutka consumers. All three cytogenic endpoints showed a statistically significant increase among the habit groups as compared with the controls[9]. Oral feeding of paan masala caused significantly elevated frequencies of sperm head abnormalities and chromosomal aberrations in male mice, indicating its clastogenic potency (Mukherjee et al 1991).[10] Mice fed on paan masala with gutka developed tumours of lung, stomach, liver, testes, ovary and adrenal gland, gutka being more potent than paan masala (Nigam et al 2001).[11]

The exact composition of paan masala is a top secret. It is believed that many manufacturers add substances like Gambiar, aphrodisiacs, cytotoxic substances like arsenic, nickel, cadmium etc and finely powdered silica.

The oral premalignant changes reported in paan masala habitués are localized/generalized submucous fibrosis, leukoplakia and erythroplakia. Pigmentary changes in oral mucous membrane and tobacco pouch keratosis have also been reported. Paan masala contains habit forming substances like nicotine, arecoline and tannin; hence the major health hazard is extreme addiction to paan masala. Though it is used initially as remedy for tension or as time pass, paan masala habitués develop psychosomatic and behavioral disorders.

India is a signatory to the World Health Organisation's FCTC (Framework Convention for Tobacco Control) treaty of 2003. The member countries of this treaty are bound to follow methods for tobacco control. Accordingly, the Government of India has passed legislation to control tobacco consumption in 2003. This includes warning signals on all tobacco material packings, ban on sale of tobacco products to minors, ban on smoking in public places, ban on sale of tobacco in railway platforms, public transport and other public places. The governments of Tamil Nadu, Maharashtra and Goa had passed ordinances prohibiting the manufacture and sale of paan masala in these states. However, the paan masala lobby is denting the spirit of this legislation by surrogate advertisements and other indirect promotional activities. In order to circumvent the governmental ban on tobacco advertisement, many brands are marketing paan masala with and without tobacco; and they show in surrogate advertisements, the sachets of brands without gutka. The average consumer is unable to distinguish between both. Remember that the sale of paan masala with gutka is many times more than the same brand without gutka.

Our role in the control of smokeless tobacco use:

It should be one of the prime duties of the dental surgeons to get involved in tobacco awareness programmes. They should also influence the legislature to come out with tobacco control laws especially regulation of sale of tobacco by gradual increase in tax on tobacco. Dentists as community leaders can spearhead tobacco control advocacy activities which make tobacco consumption an unaccepted social norm. As per the FCTC agreement, tobacco cessation clinics are being established in major hospitals, medical and dental colleges. Many of these clinics are run by dentists. A few dental surgeons are engaged in active fundamental tobacco research. So it is clear that the dental surgeons as a group has tremendous responsibilities in curbing the menace of smokeless tobacco use. This will avoid an impending epidemic of oral cancer in India to a large extent[12].

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Development of maxillofacial surgery in Kerala

* M. Ummar

Dr. Jacob Zacharia Memorial Oration delivered in the 44th Kerala state IDA Conference at Manjeri

Formerly dentistry was confined to the mechanical aspect of teeth like filling and denture works, while surgical aspect of teeth were taken care by general surgeons. Specialisation means to know more and more of less and less. Oral and maxillofacial surgery is a rapidly evolving specialty of dentistry. Its purview extends from the age old procedure of extraction of teeth to the more recent procedures such as distraction osteogenesis and reconstructive surgeries. In the beginning there was a trend to classify this speciality to oral surgery and maxillofacial surgery. Oral surgery deals with exodontia, impactions, dentoalveolar surgery and other minor procedures. Later the term oral and maxillofacial surgery was coined for the speciality. It is a branch that deals with the art of diagnosis, treatment of various diseases, pathologies and defects involving the orofacial region.

Procedures done in the beginning (till 1970)

In the beginning of the oral surgery department in dental colleges only minor oral surgical procedures were done. Biopsy, I & D for maxillofacial infection, removal of impacted teeth, cyst enucleation, small tumour excision, dental wiring and I.M.F for trauma patients were done. For impaction removal, chisel and mallet were used instead of today's surgical micromotor.

For fracture of middle third of face the maxilla was sandwiched between mandible and cranium with P.O.P Head Cap connected to chin cap. For zygoma fracture only intra oral elevation under L.A was done. For fracture of mandible, I.M.F with Erich arch bar or with Ivy loop was done. Open reduction & internal fixation were very rarely done. Only trans osseous wiring were done for fixation. Bone plates were not used. In short, conservative management was done for all the trauma patients. So most of the patients had post traumatic deformities.

For pathological lesions like ameloblastoma, cysts and tumours etc. surgical resection were done. No reconstruction was available during that period and there was post surgical deformities after ablative surgeries like maxillectomy and hemimandibulectomy etc. Giglisaw was used for bone cutting. Sophisticated bone cutting instruments like surgical micromotor, oscillating saw etc were not available.

Face workshop

In 1994, Dr. Varghese Mani started an OMFS workshop namely FACE (For the Advancement of Craniofacial Esthetics) at Trichur medical college. It is a milestone in the development of maxillofacial surgery not only in Kerala but in India. It is being conducted regularly yearwise. It has already conducted in many parts of Kerala – Trichur, Kottayam, Calicut, Ernakulam and Kothamangalam. It is also conducted outside of Kerala state like Rajasthan, Chennai, Banglore, Mumbai and Hyderabad. Many Maxillofacial surgeons and P.G students regularly attend this workshop and they get expertised in the field. Even though all kinds of maxillofacial surgeries were done here, orthognathic surgery was the main focus. Selected participants for the FACE workshop are now given hands on training in orthognathic surgery.

Dental colleges and oral surgery departments

There are three government dental colleges and 23 private dental colleges in Kerala. All dental colleges have oral surgery departments. All government dental colleges have PG Programme in oral surgery.

Oral surgery departments attached to private hospitals in Kerala

Many superspeciality hospitals in kerala has maxillofacial departments. Some of them have state – of the art facility and they are doing wonderful services.

Dr. J.I. Chacko is the first maxillofacial surgeon who started orthognathic surgery in Kerala. He started orthognathic surgery in 1972. Also he was the first maxillofacial surgeon to start mini plate fixation for trauma patients in Kerala. ..

Pioneers in oral & maxillofacial surgery

Prof. Dr. P. I . John, Prof. Dr. M.R.P Menon, Prof. Dr. V.K. Kuriakose and Prof. Dr. N.S. Rajeevan were instrumental in developing maxillofacial surgery in Kerala. Today they are no more with us.

Association of oral & maxillofacial surgeons

The association of oral & maxillofacial surgery was started in 1969 under the banner of AOMSI. Its founders included Dr. M.S.N. Ginwala, Dr. C.K. Dhanashekaran, Dr. S.S. Kera. The association is committed to promotion of the speciality through its scientific deliberations and through its journals. The association conducts one national conference and one mid-term conference in a year.

Kerala state branch

The AOMSI has a Kerala state branch. It was first started in 2003 with Dr. George Varghese as the president. Dr. Varghese Mani and Dr. George Varghese were instrumental for the formation of AOMSI Kerala

branch. The association conducts a state conference & a midterm conference every year where scientific deliberations are done and social issues related to maxillofacial surgery is discussed.

Current developments in maxillofacial surgery

Facio Maxillary Surgery is a speciality which deals with the problems of the face, mouth and jaws. A few years ago this speciality was limited to minor oral surgical procedures like impacted tooth removal, cyst enucleation and facial trauma management. Today with the advent of techniques and technologies there has been a tremendous improvement in this speciality..

1. Facial trauma

New techniques have revolutionized the management of trauma due to improved fixation methods and devices which has not only reduced the post traumatic deformities, but reduced the patients discomfort. Bio-degradable bone plates and screws made of poly diaxanone (P.D.S) are now available. These are absorbed to the body after a few months.

Before After

2. Cleft lip and palate

There are various disorders which can cause facial deformities. Some of these are congenital and some acquired. Cleft lip and palate is a common congenital deformity seen among Indians. There are various techniques to correct this deformity. The two popular techniques employed are Millard's Modified Technique and Delare's Modified Technique.

Before After

3. Orthognathic surgery

This is the surgical straightening of the deformed jaws. These deformities are either congenital or acquired. Jaws can be protruded or retruded or there can be an increase or decrease in vertical length or asymmetry of face. It is possible to cut these deformed bones using surgical drills and osteotomies and move the cut segment of bone in all three dimensions of space. When the bone is fixed in a new position, the soft tissue moves along and moulds accordingly. Today with newer fixation techniques Orthognathic Surgery has done wonders in improving appearance of face. Today most of the facial deformities of face can be corrected without causing any significant morbidity.

Before After Before After

4. Tempero mandibular joint ankylosis

TMJ Ankylosis not only produces functional problem like chewing but also aesthetic problems. Previously multiple stage procedures were employed to correct these problems. Today the single stage reconstruction techniques for TMJ Ankylosis corrects the loss of function and restores the facial deformity.

Before After

5. Rhinoplasty

This can be either functional or aesthetic. Aesthetic Rhinoplasty is one of the most challenging and fascinating fields in Facio Maxillary Surgery. Most of the orthognathic surgery patients, may need rhinoplasty as an adjuvant. Thus the relationship of rhinoplasty to orthognathic surgery can be over emphasized. Nasal deformities are plenty like cleft lip nose deformity, dorsal hump, poly beak appearance, crooked nose etc. Today with new techniques and materials all these problems can be corrected.

Before After

6. Orofacial tumours and cysts

Orofacial Tumours cause considerable morbidity and morality. Accurate diagnosis and adequate treatment can minimize this. Some of these case may need wide

resection of the lesion and complete reconstruction of the resected area. Today recent technical advancement like microvascular surgery and free flaps have solved these problems.

Before After

7. Craniofacial surgery

Craniofacial deformities result from disturbance in the normal growth and development of the face and cranium. A wide variety of syndromes are seen with varying degrees of deformities. Both hard and soft tissue deformities are seen. Correction of these problems are often challenging. Eg. Crouzson's syndrome, Apert's syndrome and hemifacial microsomia.Frontal bone advancement and LeFort III osteotomy are done for this.

Before After

8. Distraction osteogenesis

The field of oral & maxillofacial surgery is constantly evolving and adopting newer techniques to refine the surgical procedures and to achieve precision with minimally invasive techniques. One such technique that has revolutionized the treatment of facial deformity is distraction osteogenesis. The technique deals with the elongation of the bone by gradual callus distraction.

Before After

9. Maxillofacial implants

They are titanium implants used as retainers for maxillofacial prosthesis. When an organ like ear or nose is lost following a trauma or cancer surgery, a deformity remains. Titanium made retainer implants are fixed in the bone near the deformity. A prosthesis of the lost organ is fabricated and fixed over the implant retainer.

Before After

Recent innovations in maxillofacial surgery

1.Tissue engineering and stem cell therapy

In future, stem cells will revolutionize maxillofacial surgery. Reconstruction of lost soft or hard tissues after ablative surgeries is still a challenge for surgeons. The lost organ or tissues can be reproduced with stem cell therapy.

2. Laser surgery

LASER is an acronym for light amplification by stimulated emission of radiation .In maxillofacial surgery lasers are used for gingivectomy, operculectomy, and for removal of superficial vascular lesions.

3. Cyanoacrylates for wound closure

They are wound adhesives .It is biocompatible and has the ability to hold tightly living tissues. Thus it helps to keep the wound edges closely bound together, there by allowing primary wound healing

4 Endoscopic surgeries

It is useful in T.M.J surgeries and maxillary sinus surgeries .The need for large size incision and subsequent scars is thus avoided. It is a minimally invasive technique, but technically demanding.

5. TMJ arthroscopy

Diagnostic and therapeutic arthroscopies are done for TMJ diseases.

Team approach

It is needless to say that the current developments of OMFS cannot be achieved without the help of the other dental specialities. Team approach is the keyword to success in all maxillofacial surgeries and cannot be overemphasized. The members of the team include maxillofacial surgeon, orthodontist, prosthodontist, endodontist, oral pathologist, periodontist, paedodontist and general dentists.

Conclusion

The speciality maxillofacial surgery in Kerala is reaching great peaks adopting latest trends and techniques in treating congenital and acquired deformities of maxillofacial structures. Foreigners seeking medical help from Kerala are on the rise since contemporary treatments are being provided cost- effective with good quality and dedication. The other side of the coin is that research in the fields of OMFS is still in infancy in Kerala. Lack of proper documentation is another drawback. The recent advancement in maxillofacial surgery in our country are signs of good improvement, but can lead the world only when accompanied by documentation and research.

*** Prof & HOD, Department of Maxillofacial Surgery, MES Dental college, Perinthalmanna**

A comparative study of decalcification of enamel under orthodontic bands using glass ionomer and zinc phosphatecements

* Anil G., ** Satheesh Kumar B., ** Shukkoor K.M., ** Ajith R. Pillai, **Abraham Skaria

Abstract

This study was conducted to evaluate decalcification of enamel under orthodontic bands using Glass ionomer and Zinc phosphate cements. For this study 24 premolars were selected. These teeth were cemented with Glass ionomer and Zinc phosphate cements. The bonds were left in the patients mouth for three weeks to allow time for absorption of fluoride in case of the Glass ionomer .Following this, the teeth were extracted, the bands loosened and suspended in 20% acidified gelatin for 3 weeks. This is being done to simulate a low pH environment as seen under loose orthodontic bands. Following this the bands were removed and the tooth surface was cleaned of cement and studied under scanning electron microscope. Infering from the results of this study it may be concluded that Glass ionomer cements have got better cariostatic fluoride release capacity and there prevent enamel decalcification under orthodontic bands when compared with Zinc phosphate cement.

Introduction

The conventional band still plays an important role in fixed appliance therapy through the use of direct bond brackets is on the rise. This is especially true with regards to the molar bands, true in both the Begg and in the Edge wise technique. This banding inevitably requires a cementing medium

This study has focused mainly on the cementing media, in a simulated clinical situation, with regards to, demineralization of enamel under the bands

Decalcification under the bands is a major draw back with Zinc phosphate cement. The reason for this is primarily failure at the enamel- cement interface; leading to seepage of oral fluids and bacteria which can cause decalcification and in extreme cases caries.[4] This indirectly is due to the lack of chemical adhesion of the cement to the tooth structure. The main objective in introducing glass ionomer was to overcome this defect and to a large extent they have been very successful.

The aims of the study was to compare the efficacy of the cement in preventing decalcification under orthodontic bands.

Materials and method

This study was conducted in the Department of Orthodontics, Dental College Trivandrum, Sree Chitra Thirunal Bio Medical wing, Poojapura and in Regional Research Laboratory Papanamcode, Trivandrum.

This study intended to the decalcification was designed as follows:

Twenty four first premolar teeth from six orthodontic patients, who had to undergo therapeutic extractions were selected for the study. Out of which eight teeth were used as controls and eight for cementation with zinc phosphate and eight were used for cementation with Glass ionomer.

Orthodontic bands were pinched on the teeth using a 0.15x0.004 inch band material. In all patients the first premolar teeth were initially hand scaled and later they were pumiced with a bristle brush. The mouth was then rinsed and the teeth were well isolated and dried. Care was taken to see that there was no contamination of the teeth by moisture or saliva.

Out of six patients, four patients upper and lower right first premolars were cemented with Zinc phosphate cement and left first premolars were cemented with Glass ionomer cement . Two patients were considered as control. (Fig. 1)

Teeth were extracted after 3 weeks along with the bands, care was taken not to disturb the bands while extracting the teeth. Extraction being done by using root forceps and the tip of the forceps resting on the root alone. The bands were then loosened from the teeth by means of a band remover but were allowed to remain in place on teeth. This was done to simulate the clinical situation in which an orthodontic band may become loose and yet remain in situ. The roots of the teeth with loosened bands were coated with nail varnish to prevent decalcification. The teeth were then individually suspended in the test tube containing acidified gel medium. The gel was prepared by heating 20gm gelatin in 100ml 0.1 M lactic acid at 60ÚC and

Figure 1

Figure 2 (a)

Figure 2 (b)

Figure 3

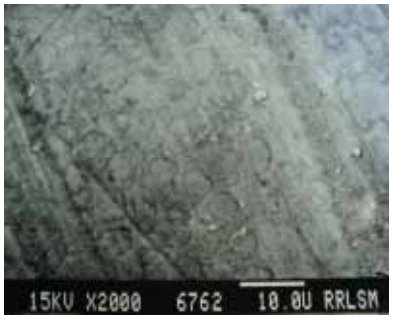


Figure 4

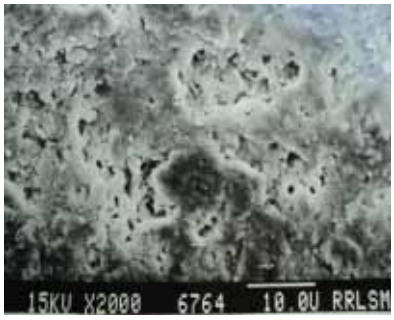


Figure 5

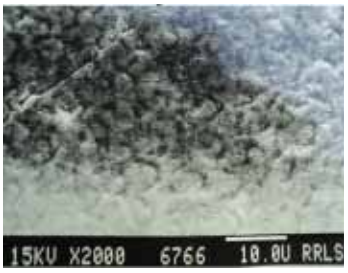
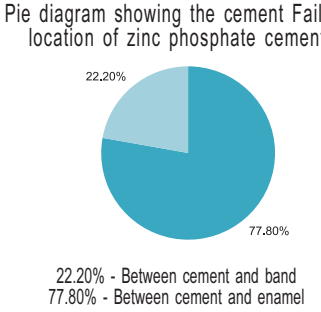
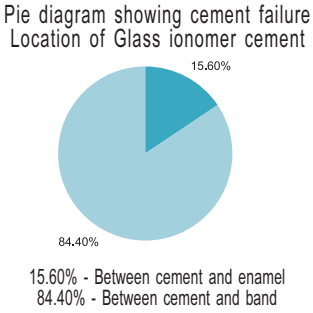
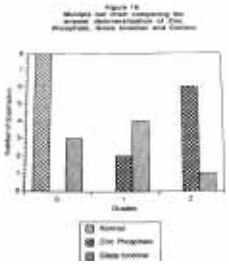


Figure 6







after cooling to near room temperature adjusting the pH to 4.5 with sodium hydroxide. The teeth were suspended in this medium for three weeks.

At the end of the third week the bands were removed from the teeth and the residual cement was cleaned surface with hand instrument only

The tooth crown were mounted on the copper stubs (Fig 2.a) and sputtered with gold in a high vacuum evaporater. Gold coating was done with 10 milliampere current for 5 minutes under vacuum in splutter coater, JEOL fine Coated ion sputter 3FC 11OO and then viewed trough a scanning electron microscope* with a resolution of 25Å (Fig 3). Then micrographs were taken.

For the evaluation of electron micrograph three post graduate students from the department of orthodontics were taught the criteria shown below.

0-Normal

Smooth enamel surface with fish scale like appearance of enamel rods fairly seen.

1- Slight demineralisation

Here inter rod regions demineralization and individual rods are clearly seen. Barely prceptable areas of pitting and erosions are noted.

2- Demineralisation obvious

Large areas of erosion with irregular border. Both regions of rod sheath as well as the rods themselves are eroded. Pitting and erosions are large and clearly perceptible.

Using randomly assigned electron micrographs the examiners were standardized till the inter examiner evaluation values were correlated with one another. Then they were made to evaluate randomly assigned photographs of the study.

Results and statistical analysis

The specimen banded with zinc phosphate cement showed severe enamel demineralization (Fig 5) while those banded with glass ionomer cement appeared to be similar to normal enamel surface or only a mild demineralisation. (Fig 11). The photographs of the normal enamel, enamel cemented with Zinc phosphate and with glass ionomer are shown below (Figs.4, 5, 6).

Table VI *Cement failure location.*

N=90

Cement	0 Between cement and enamel	1 Within cement	2 Between cement and st. band
Zinc phosphate	35 (77.8%)	0	10 (22.2%)
Glass ionomer	7 (15.6%)	0	38 (84.4%)

$x^2=35$; d.f.=1; p<.001

Table VII *Enamel demineralization under zinc phosphate, Glass ionomer*

N=24

Material	Gardes of Enamel demineralization		
	0	1	2
Normal	8	0	0
Zinc phosphate	0	2	6
Glass ionomer	3	4	1

Table VIII *Observations of enamel demineralization used to evaluate sign test*

N=8

Material	Number of observations							
	1	2	3	4	5	6	7	8
Normal	0	0	0	0	0	0	0	0
Zinc phosphate	2	1	2	2	2	1	2	2
Glass ionomer	0	0	1	1	0	2	1	1
Sign of difference between Zinc phosphate and Glass ionomer	– –	–	–	–	–	+	–	–

T value at. 05= 1.96

Z = 2.12 > 1.96

i.e There is a significant difference in the enamel demineralization of Zinc phosphate and Glass ionomer at 5% level.

Discussion

Zinc phosphate cement is the oldest dental cement and was most widely used for orthodontic banding. The cement has got chemical bonding to tooth structure nor to the stainless steel bands. It also has no fluoride release while at the same time has got relative high solubility. The cement is also brittle and fractures quite easily especially in thin areas. These drawbacks has been found to contribute to the high incidence of demineralization and caries[7]. The problem starts with adhesive bond failure of the enamel cement interface, following this plaque and oral debris accumulates in between band and teeth causing increase in acidity and demineralization. In cases with poor oral hygience and neglect this can lead to even caries[11]. It is also been said that the demineralization under band cemented with zinc phosphate is the result of initial low pH due to the high phosphoric acid in the mix[1].

The bond failure location in Zinc phosphate cement was found to be more in the cement enamel interface. This will lead to acid demineralization of the enamel surface, since it is exposed to the organic avid interaction. This may be the reason for the severe demineralization that occurred in localized areas beneath the band when it is observed under scanning electron microscope.

Since the glass ionomer cement has got its inherent potential of fluoride release and the cement failure location was more in cement band interface, the attack by the organic acid on the enamel surface and subsequent demineralization were prevented or reduced. This is why there is very little change in the surface morphology of enamel after exposure to the acidified gel.

In clinical orthodontics cemented bands remain in place for much longer periods. It could therefore be anticipated that enamel beneath glass ionomer cements would acquire more fluoride in clinical practice where as a loose band cemented with zinc phosphate cement may lead to enamel decalcification due to the seal breakdown, inadequate structural and bonding strength of the cement and their solubility in oral fluids.

In 1937 Noyes[7] suggested that the high degree of enamel decalcification and subsequent caries in orthodontic patients was related to poor oral hygiene and the failure of the cement to maintain its seal between enamel and the orthodontic band.

Gibbon in 1937 pointed out that much unfavourable criticism was directed at orthodontic services by both the laity and the professional and that many parents

believe that excessive tooth destruction was the penalty paid for having teeth "straightened".

In 1953 Docking[3] and in 1967 Ballenseifen[3] were in agreement with the earlier observation of Noyer

In 1976 Sadowsky[10] suggested that decalcification occurring beneath orthodontic bands is related to the inadequate structural and bond strength of the cement to the enamel surface, its marginal leakage at the enamel cement interface, and its solubility and disintegration.

Mizrahi, E. in 1982[5]reported that orthodontic treatment with multi banded appliance contributed to the development of new areas of enamel opacities. Favoured sites for such demineralization are around the cervical margin of the teeth, under the bands in the areas where the cementing medium has been washed out.

Ogaard, B, Rolla and Helgeland in 1983[9] in a scanning electron microscopic Study of the fluoride retention in sound demineralized enamel demonstrated that Bacteria accumulation around modified orthodontic bands led to a marked and localized direct etching of the tooth under the plaque at the junction of the tooth and after only one week.

Nilson, Jongebloed and Arends in 1983[6] in a Scanning electron microscopic study showed that fluoride was more effective in inhibiting demineralization of lesions, supporting the vitro observation that low levels of fluoride in acidic buffer solutions decrease the solubility of the mineral considerably.

Hans and Walter in 1988 [4] in their study of banding with glass ionomer cement showed a considerable increase in adhesion when th inner surface of the bands were sand blasted. Band manufactures could reduce loosening, if they would increase the surface areas of bands by sand blasting them or by welding wire mesh to the inner surfaces. According to them another benefit of glass ionomer cement is the less local demineralization. Phosphate cement tends to wash out beneath the band-even while remaining fixed-which increases the chances of demineralization.

A study by Adriaens'et al in 1990[1] describes that Flour protector is very effective in the prevention of white spot under molar bands.

An invivo study by Rezk-Lega,Ogard,Arends an 1991[12] shows that fluoride released from Glass ionomer cements contributes substantially to demineralization "reduction". However, these cements do not provide complete caries protection in sites where access is difficult.

Summary and conclusion

To study decalcification under the bands 24 premolars were selected and divided into three groups of eight teeth each. First two groups for cementing with Glass ionomer and Zinc phosphate cement. Third group of eight teeth were considered as the control. The bonds were left in the patients mouth for three weeks to allow time for absorption of fluoride in case of the Glass ionomer .Following this the teeth were extracted, the bands loosened and suspended in 20% acidified gelatin for 3 weeks. This is being done to simulate a low pH environment as seen under loose orthodontic bands. Following this the bands were removed and the tooth surface was cleaned of cement and studied under scanning electron microscope.

The scanning electron microscopic observation further confirmed this showing large areas of enamel decalcification under Zinc phosphate cement while under Glass ionomer cements the enamel appeared more or less normal.

Infering from the results of this study it may be concluded that Glass ionomer cements have got better cariostatic fluoride release capacity and there prevent enamel decalcification under orthodontic band. Because of these advantage glass ionomer can be recommended as a universal orthodontic luting cement in daily practice

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Effect of chemicals impregnated in the retraction cords on freshly prepared teeth

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Abstract

Most chemicals that are impregnated in retraction cords are acidic. Prolonged exposure of freshly cut dentine to these chemicals has been shown to remove the smear layer and result in its severe etching. Ferric ions when used with retraction cords get absorbed by dentine subsequently discolouring it.

Aims: To find out if the following chemicals penetrate and discolour the dentine of freshly prepared teeth 1) 20% ferric sulphate, 2) 15.5% ferric chloride, 3) 21.3% aluminium sulphate, 4) aluminium chloride, 5) 8% epinephrine.

Materials and methods: The root portion of ten freshly extracted teeth were embedded into acrylic resin with silicone liner simulating gingiva around the cement-enamel junction. Full crown preparation for each tooth was done to receive all ceramic crowns with shoulder finish lines. Retraction cords impregnated with each of the above chemicals were embedded into the silicone gingiva for a period of ten minutes. The cord was removed and the tooth exposed to hydrogen sulphide gas for fifteen minutes. Teeth were examined for discolouration and sectioned longitudinally. Penetration into dentine was confirmed with a stereomicroscope.

Results: Black surface discolouration and penetration of upto 5µm and 3µm into dentine was seen with ferric chloride and ferric sulphate respectively. Black discolouration was seen with epinephrine but no penetration into dentine was seen. No penetration or discolouration was seen when aluminium sulphate and aluminium chloride was used.

Conclusion: Chemicals containing iron and epinephrine should not be used while managing the tissues as they cause black discolouration which is unaesthetic. Aluminium containing chemicals can safely be used in retraction cords .

Introduction

Management of the soft tissues and exposure of the preparation finish lines are critical steps in the impression process for indirect fixed restorations. Techniques advocated for gingival retraction include mechanical, mechanicochemical, rotary, gingival curettage and electrosurgical methods. The most commonly used mechanicochemical method involves the application of a retraction cord impregnated or soaked in an astringent or vasoconstrictor. The most commonly used medicaments for gingival retraction include buffered aluminium chloride, ferric sulphate, ferric chloride, aluminium sulphate and epinephrine.[1]

Most of these chemicals are acidic, with pH values ranging from 0.7 to 3. Inadvertent and prolonged exposure of tooth structure to these materials has been shown to remove the smear layer and result in severe etching of the underlying dentine. Ferric ions have a high affinity for hard tooth surfaces. Unintentional etching of dentine by acidic iron containing chemicals can result in the physical absorption of iron into the porous demineralised dentine. This iron is capable of reacting with hydrogen sulphide produced by Bacteroides melaninogenicus (a normal commensal of the oral cavity) resulting in an internalized black insoluble ferric compound 2,3 Discolouration of the tooth adversely affects the aesthetic prognosis of fixed restorations. It was in this context the present study was designed with the following objectives.

Objectives

1) To find out if the following chemicals discolour the dentine of freshly prepared teeth –a)20% Ferric sulphate, b) 15.5% Ferric chloride, c) 21.3% Aluminium sulphate, d) 25% Aluminium chloride, e) 8% Epinephrine

2) To find out the penetration potential of these chemicals into the dentine

Methodology: Ten freshly extracted teeth were taken, the gingiva portion of each of these teeth were carved in wax upto the cervical third of the crown (Fig. 1). A polyether putty index was made of the waxed gingival portion (Fig 2). Dewaxing was done and the tooth was placed back into the putty index. Chairside polyvinyl siloxane liner was injected into the space

Fig 1: Carving gingiva with wax

Fig 2: Polyether putty index

Fig 3: Application of soft reliner

Fig 4: Simulating gingiva

Fig 5: Specimen embedded in acrylic resin

Fig 6: Full crown tooth preparation with shoulder finish line

Fig 7: Retraction cord dipped in chemicals

Fig 8: Retraction cord packed into gingiva

Fig 9: Apparatus to produce hydrogen sulphide gas

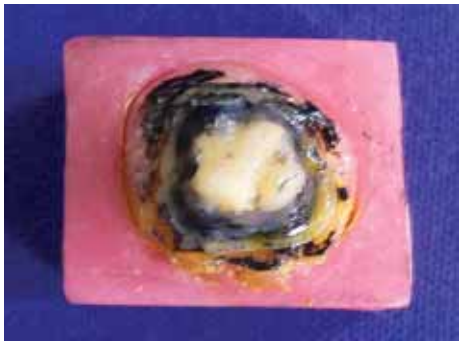

Fig 10: Black discolouration seen after exposure to H_2S gas

previously occupied by wax and was allowed to cure (Fig 3). This liner simulated gingiva of the tooth (Fig 4). The root portion of the tooth, upto the gingival portion was then embedded in autopolymerising acrylic resin (Fig 5). Each of the ten teeth were prepared to receive all ceramic crowns with shoulder finish lines (Fig 6). Retraction cord impregnated with each of the chemicals i.e 20% Ferric sulphate, 15.5% ferric chloride, 21.3% aluminium sulphate, 25% aluminium chloride and 8% epinephrine were packed into the gingival sulcus that was artificially made (Fig 7-8). Two teeth were exposed to each of these chemicals for ten minutes. The retraction cord was then removed and each tooth was exposed to hydrogen sulphide gas for fifteen minutes. This gas was produced by reacting ferrous sulphide sticks with 20% hydrochloric acid. The gas passed through a tube into another beaker where the teeth were placed (Fig 9). After the exposure, the teeth were examined for discolouration and sectioned longitudinally and viewed under the stereomicroscope(Fig 10,11).

Results

Black surface discoloration and penetration of 5 μm into dentine was seen when tooth was exposed to ferric chloride. Black surface discolouration and penetration of 3 μm into dentine was seen when the tooth was exposed to ferric sulphate. Surface discolouration or blackening of the surface was seen on the teeth exposed to epinephrine but it did not penetrate into dentine. No penetration or discolouration was seen in the teeth exposed to aluminium chloride or aluminium sulphate. (Fig 12-15)

Fi g 11: Teeth sectioned longitudinally and discolouration seen

Fig 12: Black discoloration and penetration seen upto a depth of 5µm into dentine with 15.5% ferric chloride

Fig 13: Discolouration and penetration seen to a depth of 3µm into dentine with 20% ferric sulphate

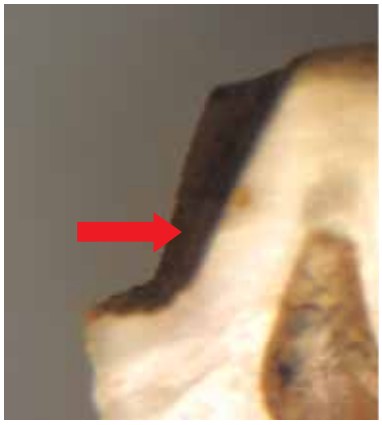

Fig 14: Surface discolouration seen but no penetration into dentine seen with 8 % epinephrine

Fig 15: No surface discolouration or penetration into dentine seen with aluminium compounds

Discussion

It was observed that when freshly cut tooth surfaces were exposed to iron compounds, ferric sulphide penetrated the dentine resulting in black discolouration, These teeth when restored by all ceramic crowns such as Lithia disilicate, a translucent material shows the black discolouration through the crown making it unesthetic. Epinephrine showed a black discolouration on the surface which also makes the crowns look unesthetic. On the other hand, teeth exposed to aluminium compounds did not show surface discolouration or penetration into dentine.

Conclusions

Chemicals containing iron and epinephrine must not be used while managing the gingival tissues. These chemicals can penetrate the dentine and react with hydrogen sulphide produced by bacteria and result in a black discolouration on the surface of freshly cut teeth which is highly unesthetic. Chemicals containing epinephrine too must not be used with retraction cord as freshly prepared tooth on exposure to the same produces a black discolouration.

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Congenital eruption cyst associated with natal teeth

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Child development from conception through the first years of life is marked by many changes. Tooth eruption at about 6 months of age is a milestone both in terms of functional and psychological changes in the child's life and in emotional terms for the parents.[1] According to the definition presented by Massler and Savara (1950).[2] Taking only the time of eruption as reference, natal teeth are those observable in the oral cavity at birth and neonatal teeth are those that erupt during the first 30 days of life. The other names are congenital teeth, fetal teeth, predecidual teeth, and dentitia praecox.

The most common location for natal and neonatal teeth is the region of the lower central incisors, and posterior teeth are extremely rare.[2] The teeth can be either a premature eruption of the normal teeth (up to 95%) or supernumerary (5%).[9] The occurrence of natal teeth is relativity rare with a frequency of one case for each 2,000 births. Natal teeth are found more frequently than neonatal teeth in a proportion of three to one.[2]

The interest, curiosity, and concern of clinicians are similar to that of the parents. Because of its rare occurrence, in the past this anomaly of eruption was associated with superstition and folklore, being related to good or bad omens. The eruption of primary and permanent dentition is subject to small variations depending on hereditary, endocrine and environmental features. At times, however, the chronology of tooth eruption suffers a more significant alteration in terms of onset, with the possibility that the first teeth will be present at birth or arise during the first month of life.

This condition has been the subject of curiosity and study since the beginning of time, being surrounded by beliefs and assumptions. Titus Livius, in 59 B.C., considered natal teeth to be a prediction of disastrous events. Caius Plinius Secundus (the Elder), in 23 B.C., believed that a splendid future awaited male infants with natal teeth, whereas the same phenomenon was a bad omen for girls. In Poland, India, and Africa, superstition prevailed for a long time, and in many African tribes children born with teeth were murdered soon after birth because they were believed to bring misfortune to all they would contact. The presence of teeth at birth was considered a bad omen by the family of Chinese children, who believed that when these natal teeth would start to bite one of the parents, would die. In England, the belief was that babies born with teeth would grow to be famous soldiers, whereas in France and Italy the belief was that this condition would guarantee the conquest of the world.[3]

Etiology

Etiology is unknown. The possible etiologic factors are superficial position of the tooth germ, infection or malnutrition, febrile states,[4] eruption accelerated by febrile incidents or hormonal stimulation, hereditary transmission of a dominant autosomal gene, osteoblastic activity inside the germ area related to the remodelling phenomenon, and hypovitaminosis.[1,4]

There is no correlation between early eruption and some systemic condition or syndrome. Some investigators, however, suggest that natal teeth may be associated with some syndromes such as Hallerman-Streiff, Ellis-Van Creveld, craniofacial dysostosis, multiple steacystoma, congenital pachyonychia, and Sotos Syndrome. However, the superficial position of the germ associated with a hereditary factor seems to be the most accepted possibility.[1,5]

Clinical features

Morphologically, natal and neonatal teeth may be conical or may be of normal size and shape and opaque yellow-brownish in colour. The dimensions of the crown of these teeth are smaller than for primary teeth under normal conditions.[1,6] Sometimes Eruption cysts occur within the mucosa overlying teeth that are about to erupt. The cyst appears as a bluish, translucent, elevated, compressible, dome-shaped lesion of the alveolar ridge, and is one of the local disturbances to eruption teeth[11].

Radiographic features

These teeth show low radiopacity, minimal or absent root formation, and an ample pulp chamber.[6]

Classification

On the basis of literature data, Hebling (1997) classified natal teeth into 4 clinical categories[1]:

1. Shell-shaped crown poorly fixed to the alveolus by gingival tissue and absence of a root;
2. Solid crown poorly fixed to the alveolus by gingival tissue and little or no root;
3. Eruption of the incisal margin of the crown through gingival tissue;
4. Oedema of gingival tissue with an unerupted but palpable tooth.

Histology

The majority of natal and neonatal teeth present enamel hypoplasia with different degrees of severity, wide vascularised pulp and irregular dentin and cement



formation.[1,6] According to some authors, the enamel covering natal teeth is thin and can even be absent in some areas.

The decision to maintain these teeth depends on a number of factors, such as degree of implantation and mobility, whether the tooth is part of the normal series or supernumerary, interference with breastfeeding, and the presence of traumatic injury.

Management

Ideally, the mature natal or neonatal teeth should be kept in the oral cavity since their extraction may cause loss of space hindering or preventing the eruption of permanent teeth. Extracting teeth presenting excessive mobility may be indicated as a way to prevent swallowing them or, an even worse situation, their aspiration.[8]

The presence of natal and neonatal teeth may lead to forming a traumatic ulcer on the ventral surface of the tongue, which is known as Riga-Fede disease.[7] The pain caused by this injury may result in dehydration and difficult breast feeding, besides increasing the likelihood of infections in the area. The incisal reduction of these teeth using a finishing bur or a grinding disk is considered a conservative treatment.

Extraction of natal or neonatal teeth should not pose any difficulties since these teeth can be extracted with a forceps or even with the fingers. However according to some authors the extraction should be delayed up to the 10th day of life to prevent haemorrhage, assessing the need to administer vitamin K before extraction, considering the general health condition of the baby, avoiding unnecessary injury to the gingiva, and being alert to the risk of aspiration during removal.

It is safer to wait until a child is 10 days old before extracting the tooth. This is to wait for the commensal flora of the intestine to become established and to produce vitamin K, which is essential for the production of prothrombin in the liver. If it is not possible to wait then it is advisable to evaluate the need for administration of vitamin K with a paediatrician, if the newborn was not medicated with vitamin K immediately after birth. Vitamin K (0.5-1.0 mg) is administered intramuscularly to the baby as part of immediate medical care to prevent hemorrhagic disease of the newborn.

Complications

1. Traumatic injuries to ventral surface of tongue.
2. Due to their great mobility possibility of being swallowed or aspirated by the infant during feeding.
3. Inconveniences during sucking due to degree of mobility.
4. Injury to mother's breast and interference with breast feeding.[8]

Case report

A male infant, born full-term after an uncomplicated pregnancy was evaluated by his paediatrician at the moment of birth, finding an intraoral mass in the anterior part of the mandible. The patient was referred to the Department of Paediatric dentistry and Oral & Maxillofacial Surgery for evaluation and management. Physical examination revealed a 4x4 cm diameter exophytic, soft, yellowish compressive translucent lesion in the anterior part of the mandible. Two natal teeth are visible and palpable through the lesion. A diagnosis of eruption cyst associated with natal teeth is made. Since there was a possibility of cyst rupture and aspiration of natal teeth, cyst enucleation and extraction is planned. Surgery was done under topical local anaesthesia which patient tolerated well. Digital pressure was applied for about 5 minutes to achieve haemostasis. Intra operative and post operative period was uneventful. Patient was reviewed after one week and the lesion was fully resolved.

Conclusion.

1. Natal and neonatal teeth are rare in the oral cavity.
2. The presence of natal and neonatal teeth may lead to forming a traumatic ulcer in the ventral surface of the tongue, which is known as Riga-Fede disease. Sometimes there will be an associated eruption cyst along with the natal tooth.
3. Indications for extraction include hyper mobility, difficulties during breast-feeding, traumatic ulcerations on tongue/lip (Riga-Fede's disease), inflammation, etc. There is usually great concern about possible aspiration or swallowing of hyper mobile teeth. Supernumerary teeth need extraction if confirmed by radiography.
4. Extraction during the first days of life seems to be atraumatic.

5. Teeth that are stable beyond 4 months have a good prognosis. Esthetically they are not pleasing due to their discoloration.

6. Periodic follow-up by paediatric dentists is of fundamental importance, as also are recommendations to the parents with respect to oral hygiene.

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Prevalence of fissured tongue occurring alone and in association with Syndromes - A Cross sectional study

* Omal P.M., ** Akhilesh Prathap, *** Nithin Mathew

Abstract

Objective: To study the prevalence of fissured tongue occurring alone and in association with syndromes.

Methods: A cross sectional study was designed to evaluate the prevalence of fissured tongue. Healthy and randomized sample populations were used to estimate the prevalence of fissured tongue in the region. Fissured tongue was diagnosed clinically based on presence of visible grooves (fissures) on the dorsal and lateral aspects of the tongue. To test the statistical significance, Chi square test was used. Data analysis was carried out using SPSS (Statistical package for the social sciences) software version 14.

Results: Out of 752 patients screened, 363 were males and 389 females. Fissured tongue was seen in 358 cases (47.6%).No significant difference was observed between the genders (males-50.6%, females-44.7%) (p=2.67). Syndrome associated fissured tongue was rare at 1.95 % with 2 patients of Melkersson –Rosenthal syndrome and 5 patients of Down syndrome.

Conclusion: From this study it was observed that nearly half the population had fissured tongue. Syndrome associated fissured tongue was less and no significant differences were seen among the genders.

Introduction

Fissured tongue is a benign condition seen on the dorsal surface of the tongue and is characterized by the presence of shallow or deep grooves (fissured).[1,2] This condition is relatively common among the general population. This paper focuses on the prevalence of fissured tongue occurring alone and in association with syndromes.

Methods

The present study was conducted in the Department of Oral medicine and Radio diagnosis, Pushpagiri college of Dental Sciences, Tiruvalla, Kerala, India, over a period of 3 months, from September 2009 to November 2009. Study group comprised of subjects from various age groups and of both sexes. Demographic data collection, recording of fissure tongue in each patient were carried out in a systematic manner. Healthy and randomized sample populations were used to estimate the prevalence of fissured tongue in the region. Presence of visible grooves (fissures) on the dorsal and lateral aspects of tongue was the clinical criteria followed for diagnosing fissured tongue.3 examiners examined each case independently and inter observer agreement was 98.7% towards diagnosis of fissured tongue. A pilot study of randomly selected 25 individuals was carried out to determine the feasibility of the study, the amount of time required for examination of each subject. Data so obtained was recorded in a proforma that was later transferred onto a computer for statistical analysis which was carried using SPSS (Statistical package for the social sciences) software version 14. The mean and standard deviation values were calculated for clinical parameters. Chi-square test was used to compare data among the groups. Analysis was done by using SPSS (statistical package for social sciences) software version 14.0.

Results

Data collected was analyzed and the results showed the following observations.

Table 1 and figure 1: Showing the prevalence of fissured tongue in different age groups.

Among 752 patients screened from different age groups, ages ranging from 3 to 80 years, mean of 45.8 years (sd 187.57) the highest peak of prevalence of fissured tongue was observed in 51-60 year age group with less numbers seen in children (0-10 year) and elderly individuals (81-90 year).

Figure 2: Showing the prevalence of fissured tongue in Male and Female populations.

Out of 358 patients who had fissured tongue, no significant difference was observed between the genders (Males -50.6%, Females -44.7%), P=2.67

Figure 3: Present /Absent status of fissured tongue.

Out of 752 patients screened, patients who had

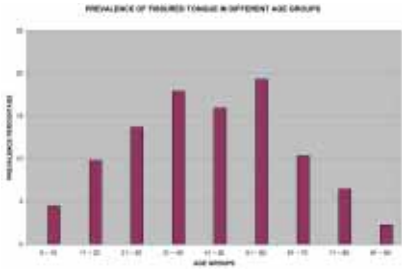

Fig 1. Prevalence of fissured tongue in various age groups.

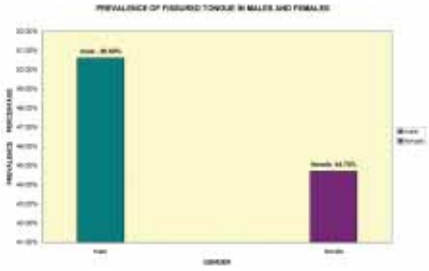

Fig 2. Male-female ratio of fissure tongue in the study population.

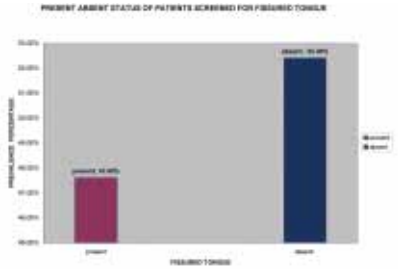

Fig 3. Present-Absent ratio of fissured tongue in the study population.

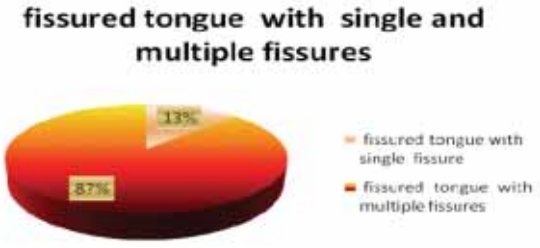

Fig. 4 Pie chart showing prevalence of Single vs multiple fissuring (tongue) in the study population.

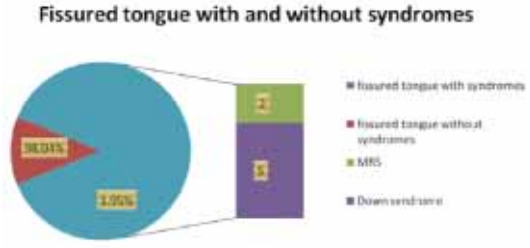

Fig. 5 Pie chart showing Syndrome associated fissured tongue prevalence.

fissured tongue were 358(47.6%) and absent being 394(52.4%).

Figure 4: Showing the prevalence of Single midline fissuring vs Multiple fissuring in dorsal tongue.

Out of 358 patients who had fissured tongue prevalence of Single midline fissuring was 13 % and Multiple fissuring 87 %.

Figure 5: Showing the prevalence of Syndrome associated fissured tongue.

Out of 752 patients, total number of syndrome associated fissured tongue patients were 7(Melkersson Rosenthal syndrome {MRS} =2, Downs syndrome =5) with overall 1.95 %.

Discussion

Fissured tongue[1, 2] is a benign condition frequently seen in the general population. It affects both males and females; however some reports have shown a slight male predilection[3]. It is characterized by the presence of grooves (fissures) that may vary in depth and are noted along the dorsal and lateral aspects of the tongue. Fissured tongue may be seen occurring as a single or multiple fissures (fig 7). Different synonyms for this condition include-scrotal tongue, plicated tongue, furrowed tongue, lingua fissurata, lingua plicata, grooved tongue etc.No specific definition is mentioned in the literature for fissured tongue to the best of our knowledge. Fissured tongue may be defined as a Developmental disorder of the tongue characterized by the presence of single or multiple fissures over the dorsal and lateral surfaces of the tongue which could be associated with glossopyrosis.

The exact etiology of fissured tongue is unknown, however a polygenic mode of inheritance[4] is suspected because the condition is seen clustering in families who are affected. This condition is initially noticed during routine intraoral examination as an incidental finding and patients are asymptomatic. Fissured tongue may be evident at birth (congenital) or become apparent during childhood or later.

Fissured tongue is also seen in association with certain syndromes viz- Melkersson –Rosenthal syndrome (MRS) and Down syndrome[5] and in frequent association with benign migratory glossitis (geographic tongue). MRS[6] is a rare condition classically associated with a triad of facial and or lip edema, fissured tongue and relapsing facial palsy (figures 6,7). Rarely fissured tongue has been reported with other syndromes like Touraine Solente Gole syndrome[7] which is characterized by the presence of finger clubbing, skeletal changes, pachyderma and fissured tongue.

Prevalence of fissured tongue worldwide varies by geographic location and has been reported to be as high as 21.1%.[8] Various authors around the world have published different prevalence rates of fissured tongue based on their study sample size.Yarom N, Cantony U, Gorsky M[9] has reported a study which was conducted to assess the prevalence of fissured tongue(FT), geographic tongue and median rhomboid glossitis among Israeli patients and found the prevalence of FT to be 20.5% from a total of 2,464 healthy Israeli adults. Vörös-Balog T, Vincze N, Bánóczy J[10] has reported the prevalence of tongue lesions in Hungarian children from a total of 1017 preschool and school children aged

Fig. 6 Photograph of a patient with Melkersson-Rosenthal syndrome showing upper and lower lip edema.

Fig. 7 Intra oral photograph of the same patient with Fissured tongue.

Sl.no.	*Age Group (Years)*	*No. of patients with Fissured Tongue*	*Percentage*
1.	0 – 10	16	4.46
2.	11 – 20	35	9.78
3.	21 – 30	49	13.68
4.	31 – 40	64	17.89
5.	41 – 50	57	15.92
6.	51 – 60	69	19.29
7.	61 – 70	37	10.33
8.	71 – 80	23	6.42
9	81 – 90	8	2.23
Total		**358**	**47.6%**

1-14 years, they found fissured tongue to be the most frequent lesion (29.2%). In our present study, we could observe the overall prevalence of fissured tongue going upto 47.6 % in the 752 patients screened (fig. 3) giving a slight difference from the data published earlier. No statistically significant difference were observed between males and females (P=2.67) (Fig 2). Incidence of multiple fissures was 87% when compared to single midline fissuring 13 % (fig 4).

Among the various age groups, fissured tongue was most common among 50-60 year age group (Table 1& fig 1) with less numbers seen in children and elderly adults(fig 1). Syndrome associated fissured tongue incidence was rare at 1.95% with 2 patients of MRS and 5 patients of Down syndrome in the study group of 752 (fig 5).

Conclusion

Fissured tongue is relatively common among our general population. Since this condition is benign and does not require any treatment, reassuring the patient is all that is required.Through this study we have tried to focus on the prevalence of fissured tongue and fissured tongue associated syndromes and also made an attempt to compare it with other clinical studies published earlier.

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The effect of intrusive force application on pulp and dentine

* Satheesh Kumar B., ** Anil G., ***Jayanth Jayarajan, *Abraham Skaria

Abstract

Investigations of tissue damage occurring during orthodontic tooth movement have been hampered by the difficulty in obtaining human material. For this reason most of the studies on tooth movement have been restricted to animals. A histologic study of the pulpal and dentinal changes was undertaken. Photomicrographic evaluations were made by a histopathologist. The main change evaluated was the vacuolization of the odontoblastic layer.

Introduction

The science of orthodontics is based upon the ability of teeth to be moved through bone by the application of pressure and tension under appropriate and controlled circumstances. Although the exact biologic mechanisms for this phenomenon is unknown, it is generally agreed that bone under pressure responds by resorbing where as application of tension results in deposition of new bone .

Correction of deep overbite constitutes an important part of orthodontic treatment. Intrusion has been regarded as a controversial topic in orthodontic literature. During intrusive movements, the neurovascular bundle is compressed leading to iatrogenic changes to the tooth. In this study the histologic changes are analyzed after taking photomicrographs of the teeth subjected to movement.

Materials and Methods

Orthodontic patients who required extraction of maxillary and mandibular premolars as a part of treatment were selected for the study. The sample consisted of 25 first premolars of which five were extracted without treatment and served as control material. The remaining twenty teeth were subjected to orthodontic force for varied amount of time before extraction. Histologic evaluations of such teeth were done under light microscope.

Results

Following histologic observations were seen in teeth subjected to orthodontic force

1. Decrease in the number of fibroblasts in cases with mild to severe vacuolization of pulp tissue
2. In most cases where 8-10 oz of force is applied for 4 weeks there is an increase in the number of enlarged capillaries filled with red blood corpuscles.
3. Width of the predentine layer is same as in control teeth in almost all cases.
4. No significant increase in the amount of inflammatory cell infiltration in any of the experimental samples.

Discussion

The dental pulp is a delicate connective tissue liberally interspersed with blood vessels, lymphatics, myleinated and unmyleinated nerves and undifferentiated connective tissue cells. Like any other connective tissue in the body it reacts to an external stimulus by an inflammatory response.

The vacuolization of the pulp tissue and cells are often considered as degenerative changes of the pulp.

The second significant finding was the alteration of the pulpal micro- vascular system in the experimental teeth. Many investigators observed disturbances in the pulpal circulatory system following orthodontic forces. The pulpal changes vary from reversible pulpitis to pulpal necrosis.

A reduction in the number of fibroblasts was noted in the experimental teeth compared to control material. The reduction in the number of fibroblasts may be relative change or a sequelae of the vacuolization and reticular atrophy of the pulp following force application.

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Case report

Healing of a large periapical lesion- a non surgical approach

* N.O. Varghese, ** Varna R., ** M. Rajesh Karthik

Abstract

Bacteria is considered as the etiological agents for most of the endodontic diseases. Mere surgical removal of the periapical lesions without proper root canal disinfection and obturation will not result in the healing of periapical tissues. When the treatment is done properly, healing usually happens by osseous regeneration, which is seen as reduction in radiolucency in subsequent radiographs.

This case highlights follow up results of resolution of periapical pathology achieved through a non surgical approach, observed over a period of 12 months. Emphasis is laid on thorough debridement and three dimensional obturation of root canal system by a simple lateral condensation technique in the case.

Introduction

Endodontic disease is attributed to the presence of micro organisms in the root canal system. This was proved in a classical study by Kakehashi et al in 1965. The treatment of primary apical periodontitis consists of eradication of micro organisms from the root canal systems or substantially reducing the load and preventing reinfection by orthograde obturation. When the treatment is done properly, healing usually happens by osseous regeneration, which is seen as reduction in radiolucency in subsequent radiographs.

Based on histological findings a large periapical lesion can be a cyst or a granuloma. Many endodontists hold the view that most cysts heal after endodontic treatment. Oral surgeons believe that cysts do not heal and should be removed by surgery. This difference of opinion is because of the reported large incidence of cysts which varies from 6-55%. A correct histopathological diagnosis is possible only by serial sectioning or step serial sectioning of the lesions removed in toto. A radicular cyst can be further subdivided into true cysts and periapical pocket cysts/bay cysts. True cysts are lined by epithelium on all sides. In bay cyst, the epithelium lined cavity open into the root canal.

Until recently endodontic treatment followed by surgery was done to treat large periapical lesions . Orthograde endodontic treatment followed by three dimensional obturation can lead to healing of periapical pocket cyst / bay cyst.

The following case describes a large periapical lesion treated by orthograde root canal treatment and regular follow up.

Case Report

A 40 year old lady reported to Dept of Conservative Dentistry, Govt Dental College, Thiruvananthapuram complaining of swelling in the palatal aspect of upper right canine. She had complains of intermittent swelling in relation to the same region which would subside on taking self medication. There was a history of orthodontic treatment to correct proclination of teeth about 15 years back. The teeth 12 and 13 had a yellowish discoloration and were tested non vital on thermal and electrical pulp testing . Both periapical and occlusal radiographs were taken which reveals a well defined radiolucency associated with the apices of 12 and 13 (Fig 1). Conventional root canal therapy was initiated. Following isolation with rubber dam, access cavity was prepared on the maxillary lateral incisor and canine and the working length determined(Fig 2&3). Canals were cleaned and shaped using K-Files by conventional method. 5.25 % sodium hypochlorite was used as the intracanal irrigant. The files were liberally coated with RC-Prep throughout instrumentation. The canal was enlarged to an apical size of ISO #60. Calcium hydroxide dressing was placed in the canal as the intracanal medicament, and access cavity was closed with cavit. Patient was recalled a week later and received a fresh dressing of calcium hydroxide, following thorough irrigation and drying of the canal. This procedure was repeated again after one week. In the fourth visit, the canals were cleaned and dried using paper points. Master cone selection was done corresponding to ISO #60 size. The obturation was completed by lateral condensation technique using gutta-percha and zinc oxide eugenol root canal sealer (Fig 4). The post obturation radiographs at 3, 6, 9,12 and 15 months show complete resolution of the radiolucency.(Fig 5, 6,7&8).

Discussion

Treatment options to manage large periapical lesions range from non-surgical root canal treatment and /or apical surgery to extraction. When non surgical root canal

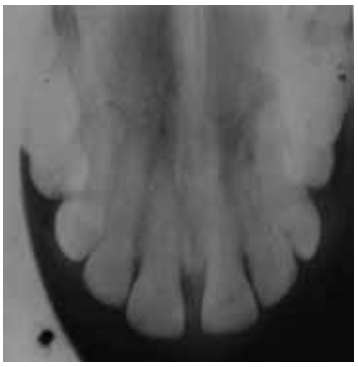

Fig 1. Diagnostic *iopa*

Fig 2. W L IOPA

Fig 3. Mastere cone GP placed

Fig 4. Post obturation IOPA

Fig 5. After 3 months

Fig 6. After 6 months

Fig 7. After 9 months

Fig 8. After 12 months

treatment is not successful in resolving the periradicular pathosis, additional treatment in the form of surgical intervention (curettage and apical resection with retrograde filling) can be under taken.

Root canal treatment is based primarily on the removal of microbial infection from the complex root canal system. Irrigants and intracanal medicaments aid in reducing the microbial flora of infected root canals. In the present study, calcium hydroxide was used as the intracanal medicament. It has been shown that use of calcium hydroxide as a dressing for 1 week efficiently eliminates bacteria from the root canals.

The aim of orthograde root canal treatment is the elimination of bacteria from the root canal system and prevention of reinfection by means of a three dimensional obturation. Periapical pocket cysts may heal after root canal therapy. A true cyst is self sustaining since the lesion no longer depends on the presence or absence of root canal infection. Therefore, true cysts do not heal by conventional endodontic treatment. Hence this questions the rationale of certain diagnostic and therapeutic practices like disproportionate application of apical surgery based on radiographic diagnosis of apical lesions as cysts or the widely held belief that majority of the cysts heal after conventional orthodontic treatment. However it should be remembered that cysts can sustain post treatment apical periodontitis and the option of apical surgery should be considered if orthograde root canal treatment has not resulted in satisfactory healing.

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Review

Current concept of Local anesthetic techniques to manage painful inflamed pulp

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Abstract

Managing a patient with painful irreversible pulpitis is often challenging to the clinician.Painless pulpectomy in such a situation demands much skill and patience and will help to build up patients confidence..There are several local anesthetic techniques in practice and achieving a successful mandibular pulpal anaesthetia after inferior alveolar nerve block is some times impossible.This article reviews current strategies in managing a painful tooth with irreversible pulpitis..

Obtaining an adequate anesthesia for a painful tooth is easily said than done. Carious tooth with an inflamed pulp often presents with moderate to severe pain. Acute inflammation causes release of mediators of inflammation (prostaglandins & interleukins) and these substances sensitize the peripheral nociceptors within the pulp, which increases pain production and neural excitability. All these changes will cause the pain of affected tooth.

Emotional considerations and tissue changes influence effectiveness of Local anesthesia. The reason why many endodontic patients recollect a horrorful experience after root canal therapy may be due to the experience of a painful tooth rather than due to the treatment procedure. Apprehension and anxiety of the patient in addition to the fatigue because of loss of sleep and inability to eat contribute to the decreased tolerance for pain.

Initial management of the patient and proper anesthetic techniques can elevate the pain threshold .Gaining patients confidence by establishing effortless communication, by showing empathy and concern about their apprehensions all are helpful in making the patient comfortable and cooperative. Adapting a nearly painless injection technique by using topical anesthesia, injecting the solution with gentle needle insertion and slow deposition of solution (one minute per cartridge) helps in reducing patient apprehension.

Determining whether adequate anesthesia has been achieved is crucial for doing successful pulpectomy. Maxillary anesthesia is obtained either by infiltration or by Posterior superior alveolar block. Anesthesia of mandibular teeth is usually achieved by Inferior Alveolar Nerve Block (IANB) and is often encountered with greatest number of failures[1]. Accurate delivery of the anesthetic solution is important for its success and missed blocks (lack of lip numbness) occur about 5%[2] of time, readministration of anesthesia becomes often necessary. The incidence of pulpal anesthesia after IANB is more predictable in molars and premolars than in lower anterior teeth. The success of IANB is traditionally checked by onset of soft tissue anaesthesia, but this method is not to be found very effective in determining the level of pulpal anesthesia. Objective tests like Electronic Pulp Testing (EPT) and or application of cold refrigerant have been used to determine pulpal anesthesia. A negative response indicates anesthetised pulp. A painful tooth with pulpitis and a negative pulpal response after local anesthesia may not positively guarantee a painless pulpal entry. A tooth with necrotic pulp in pulp chamber and vital tissue in root canal may not be tested by pulptesting and testing should be done on adjacent tooth to get anesthetic status.

A clinically successful IANB show signs of pulpal anesthesia ten to fifteen minutes after administration and shall sustain its effect for sixty minutes as shown by EPT method. The lack of predictability of IANB that sometimes found has prompted the search for better pulpal anesthetic methods. Several studies were done using different anesthetic solutions[3] in normal pulp but failed to get any substantial difference in their efficiency. Change of anesthetic technic for IANB using Gow-Gates technique or Vazirani-Akinosi technique has not been shown to be superior .Accuracy of needle placement at the exact site which is assured by ultrasound[4] did not result in more successful pulpal anesthesia. Needle bevel direction (towards or away from mandibular ramus) has shown not to affect the success rate[5]. Blocking the myelohyoid nerve after IANB and increasing the volume of anesthetic solution used for injection[6] did not offer any advantage.

There are several theories to explain the failure of Inferior Alveolar Nerve Block. The central core theory may give an acceptable explanation[7]. This theory states that the outer nerve of the inferior alveolar nerve bundle supply the molar teeth and the deeper nerves supply the anterior teeth. The currently used anesthetic solutions may not be able to diffuse into the nerve trunk to reach all the nerves and provide an adequate block. This explains the difficulties in achieving successful anesthesia for mandibular anterior tooth. Pulpal inflammation lowers the pH at the inflammatory site the acidic pH reduce the amount of the base form of the anesthetic needed to penetrate the nerve sheath and membrane leading to anesthetic failure. This theory may explain only the local effects of inflammation and does not explain the lack of effect when anesthesia is given at a site away from inflammation like that of IANB. Another theory states that nerves arising from inflamed tissue have altered resting potentials and reduced thresholds of excitability.[8] It was shown that anesthetic agents were not able to prevent the transmission of nerve impulses of inflamed nerves because of the lowered excitability thresholds. Presence of anesthetic-resistent sodium channels[9] in inflamed pulps is also explained as a reason for the lack of anesthesia.

Supplemental injections

These injections are given when a clinically successful IANB fails to give adequate anesthesia for a painful tooth.

Intra ligamentary injection: This is one of the widely used. supplementary method. Periodontal ligament injections are given using either a standard dental syringe or a high pressure syringe. Needles of different gauges (25, 27 or 30-short) can be used. A small volume of approximately 0.2 ml is deposited on each gingival sulcus under pressure.

Attainment of back pressure is important for a successful injection. The periodontal ligament injection forces the anesthetic solution thro cribriform plate into the marrow space and into the vasculature in and around the tooth. The duration of pulpal anesthesia is 10 to 20 minutes. The development of computer controlled delivery systems enables one to deliver the precise amount of solution. A transient decrease in blood pressure and increase in heart rate have been reported with epinephrine containing solution.

Intraosseous injection: The intraosseous injection allows placement of local anesthesia directly into the cancellous bone. There are several IO systems including Stabident system, X-tip system and intraflow handpiece system that are available. A 27 gauge needle is inserted into a perforation thro bone buccally. Onset of anesthesia is rapid and lasts for an hour, volume of 1.5 to 2ml of solution is used. A transient increase in heart rate have been reported after IO injections containing epinephrine or levonordefrin anesthetic solution. When medical history contraindicate epinephrine 3% mepivacaine plain is advisable.

Intrapulpal (IP)injection: In approximately 5% to 10% of mandibular teeth with irreversible pulpitis, even repeated injections of supplemental anesthesia (PDL and IO) may not produce adequate pulpal anesthesia. This is an indication for IP injection. Strong backpressure has been shown to be a major factor in producing anesthesia.

Onset is immediate, but has a short duration of action (15 to 20 mts). IP method requires pulp exposure for injections and this may be very painful during dentin penetration. The patient should be warned to expect moderate to severe pain during initial phase of injection.

Conclusion

A clinically successful mandibular block for a painful tooth often fails to produce adequate pulpal anesthesia for pulpectomy. Failure of Inferior alveolar nerve block prompts one to choose supplemental anesthetic techniques. Proper training and execution of supplemental anesthesia makes the practitioner assertive to manage a distressed patient having irreversible pulpitis. An empathic approach is important to make the patient confident and cooperative.

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Case report

An unusual presentation of monostotic fibrous dysplasia of mandible

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Abstract

Fibrous dysplasia (FD) is a disturbance of bone metabolism that is classified as a benign fibro-osseous lesion. Fibrous connective tissue containing abnormal bone replaces normal bone. The etiology of FD is unknown. It occurs most commonly in the second decade of life. The clinical and radiological signs of FD are not sufficient to diagnose the disease; a histopathology result aids in diagnosing. The radiographic appearance of the irregularly shaped trabeculae aids in the differential diagnosis. Surgical intervention may be necessary to manage secondary complications and deformities. Here, we report a case of monostotic FD in a 11 year old female patient and its diagnostic work-up.

Introduction

FD of the bone is a lesion of unknown etiology, uncertain pathology, diverse histology, which although is not strictly a neoplasm but behaves like one. It is a developmental derangement of bone caused by an aberrant activity of bone forming tissue, resulting in abnormal proliferation of mesenchymal bone forming cells. Initial symptoms are most often present during childhood or adolescence, as bone swelling, pain and repeated fractures. The other clinical findings are bone deformity and neurological compression, especially when the facial bones or the skull are involved. It may be divided into three categories: monostotic (74%), polyostotic (13%) and craniofacial (13%).1

Case report

A 11 year old female patient reported to our department with the complaint of swelling over right lower jaw region since 1 month. Swelling was insidious in onset, initially small measuring about 0.5 X 0.5 cm present at the middle of the lower border of the mandible, gradually progressed to present size, it was associated with pain only on touching the area. (Fig- 1) Patient denied any history of swelling in other parts of body.

There was not any pathologic finding on physical examination of other systems.

Extraoral examination revealed diffuse irregular shaped solitary swelling measuring about 1.5x1.5 cm is seen right lower border of the mandible. Margins were ill defined with overlying skin appearing stretched. On palpation, swelling was mild tender without rise in local temperature and bony hard in consistency. (Fig- 2)

Intra-oral examination showed normal buccal and lingual vestibular space. Palpation revealed mild expansion of buccal cortical plates with tenderness.

Following radiographic investigation were carried out.

Panoramic radiograph revealed diffuse irregular radiopacity measuring about 1.5 X 1.5cm present at the middle of the body of mandible. The trabecular pattern appeared irregular and thickened, with no discernible orientation. Thinning of the lower border of the mandible was noticed. (Fig 3)

CT revealed irregular trebecular pattern with hyperdense areas. Buccal and lingual cortical plate expansion along with thinning and perforation of lower border of mandible is noticed. (Fig- 4, 5, 6). The serum levels of creatinine, calcium, phosphate and alkaline phosphatase were all under normal levels.

Incisional biopsy was done under general anesthesia (fig- 7, 8). Histopathology revealed a spindle shaped fibroblasts with little collagen fibers and irregular trabeculae of immature bone scattered throughout the lesion without definite pattern of osteoblastic rimming.(fig -9) All these features were suggesting of fibrous dysplasia. Patient was kept under observation for 10 months and there was no increase in the size of the swelling was noticed.

Discussion

The original term FD was introduced by Liechtenstein in 1938. FD is usually caused by a mutation in the gene that encodes the subunit of a stimulatory G protein (Gsá) located on chromosome 20.1,2. This mutation results in overproduction of cAMP in the affected tissues leading to hyperfunction of endocrine organs.[2,3]

In a systematic review of previous studies of FD McDonald and Jankowski determined that the most common presenting complaints was swelling in 94% of cases and pain in 15% (As seen in present case).

Fig 1 & 2: Extra oral photograph showing diffuse irregular shaped swelling at the lower border of mandible

Fig 3: Panoramic radiograph showing irregular radiopacity at right lower border of mandible

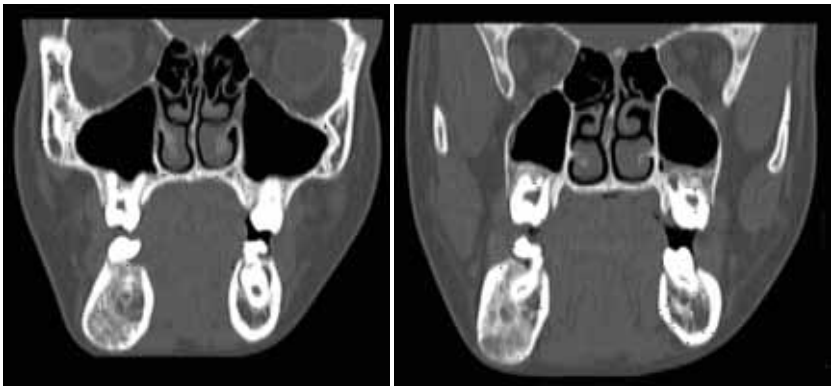

Fig 4 & 5: Coronal CT showing irregular trebecular pattern with thinning of lower border of mandible.

Fig 6: 3D CT of mandible showing perforation of right lower border of mandible

The lesions of FD are twice common in maxilla than in mandible.[4]

The case described here is unusual because the patient reported swelling of short duration with tenderness and radiographic appearance of the internal architecture was not consistent with the common descriptions of FD, which typically refer to a salt-and-pepper, orange peel, ground glass or thumb print appearance. In this case, trabecular pattern appeared irregular and thickened, with no discernible orientation.

In McDonald-Jankowski's study, the most common radiographic presentation of FD was a poorly defined, ovoid (fusiform) area of dysplastic bone exhibiting a ground glass appearance. Petrikowski and others suggested that upward displacement of the mandibular canal may be unique to FD and could be pathognomonic.[5]

Fries has described 3 radiological patterns in craniofacial FD.[6] The first is pagetoid with bone expansion and alternate areas of radiodensity and radiolucency. The second pattern is sclerotic, with bone expansion and a homogenous radiodensity . The third type is cyst-like, usually a round or oval lesion with a sclerotic border. The sclerotic and cyst-like patterns occurred in younger individuals (average age 20 years).[6] Our case matches with the second type of Fries description. Meanwhile, in spite of the normal level of the bone markers, our case was identified as FD.

Differential diagnosis of the initial radiolucent stage must include the following: Central ossifying fibroma (COF), Central giant cell granuloma, Aneurysmal bone cyst, Osteomyelitis and early fibro-osseous lesions. Because these lesions represent a variety of disease processes with different behaviors, including infection and endocrine dysfunction. Prompt diagnosis incorporating clinical, radiographic and histopathologic findings is essential.

COF is a benign neoplasm that commonly has a radiographic and histopathologic appearance similar to that of FD. In contrast to FD a well-defined capsule occasionally surrounds the lesion. Radiographically a well-defined margin is consistent with COF whereas the margins of fibrous dysplasia tend to merge with the surrounding normal bone. COF occurs mostly in the third and fourth decades of life whereas FD is most often discovered in the second decade. COF tends to occur more commonly in the anterior region of the mandible and is smaller in size whereas fibrous dysplasia is more common in the posterior maxilla and the lesions tend to be larger. Both the lesions tend to expand the bone cortex.[7]


Fig 7 & 8: Biopsy procedure & specimen

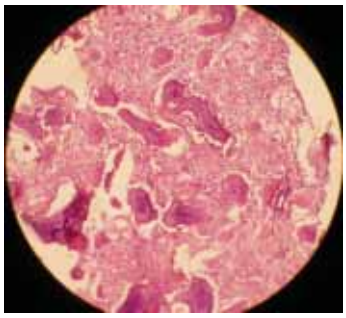

Fig 9: Photomicroscope showing irregular osteiod bone without osteoblastic rimming.

Treatment is usually conservative with surgical recontouring.[7] Any underlying endocrine disturbances should be treated. No specific medical treatment exists for the bone disease although early evidence suggests that vitamin D and bisphosphates may be helpful in alleviating pain. Ruggieri et al suggested that sarcomatous transformation occurs in 0.5% of all forms other than in McCune– Albright syndrome, which has a 4% transformation rate.[4] The factors which reactivates the FD are not recognized. Possible reason may be female sex hormones, growth hormone, traditional medicines and environmental events, such as fluoridation of the water supply.

Conclusion

Isolated cases of FD in maxillomandibular region are rare and can be difficult to differentiate from other benign and malignant bone disorders. The general dental practitioner can be the first to detect such conditions especially when the only affected areas are in maxillo-mandibular region. So sufficient knowledge on this condition is important for the proper diagnosis, treatment and prevention of further complications.

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Installation ceremony of IDA Kerala State


Dr.Samuel.K.Ninan installing Dr.Santhosh Sreedhar as the 44th President of IDA Kerala State.

Acceptance Speech

Office Bearers of IDA Kerala State-2011

Keynote Address by Dr.U.S..Krishna Nayak.

Vote of Thanks by Dr.Shibu Rajagopal

Bone augmentation and sinus lift followed by immediate placement of implants using a lateral window surgical technique

* Rohit K. Menon, ** T. Sreelal, *** C.R. Shobana, **** Shiv Prasad Sharma

Abstract

Use of dental implants to replace missing teeth in the posterior maxilla has long been a challenge for dentists due to the limited availability of alveolar bone. This region presents many unique and challenging conditions in implant dentistry. Existing proven treatment modalities make procedures in this region as predictable as in any other intraoral region. In recent years, the procedure known as "sinus lift" has turned out to be a viable predictable treatment for partially or totally edentulous patients with atrophy of the posterior maxilla .After the initial introduction by Tatum in the mid 1970s, and the initial publication of Boyne and James in 1980, many studies have been published about sinus grafting with results higher than 90 percent. This case report describes the use of a lateral window surgical approach for the augmentation of the maxillary sinus in the maxillary posterior region using alloplastic graft material followed by immediate placement of implants

Introduction

Maxillary posterior partial or complete edentulism is one of the most common occurrences in dentistry. Hence maxillary posterior region is one of the most common areas to be involved in an implant treatment plan to support a fixed or removable prosthesis.[1] The edentulous posterior maxilla is frequently characterized by post-extraction ridge atrophy, pneumatization of the sinuses, low bone density and the highest occlusal loads of the dental arch. All of these factors can create significant clinical challenges to successful rehabilitation with dental implants. Although placing longer (i.e. ≥ 10 mm) and wider diameter (i.e. > 3.75mm) implants can improve long-term results, preliminary sinus grafting is generally required to provide sufficient vertical bone volume for implant support. For decades, clinicians believed that alteration of the sinus floor morphology was unfeasible, but in 1975 Tatum introduced a technique for increasing maxillary bone height by placing bone graft material between the bony sinus floor and the elevated Schneiderian membrane. [2] In 1980, Boyne and James published the first report on the use of bone grafting in the maxillary sinus to allow the placement of dental implants, and Misch proposed that sinus lift and implant placement could be performed in a single surgery.[3,4] Grafting of the maxillary sinus to overcome the problem of reduced vertical available bone has become a very popular and predictable procedure over the last decades.

Case report

A 35 year old male reported to the Department of Prosthodontics, Govt. Dental College Trivandrum with a missing upper left second pre-molar and he wanted it to be replaced with an implant supported prosthesis. A thorough clinical examination of the patient was done and study models were made. The crown height space was adjudged to be 8 mm which was found adequate.

The OPG of the patient revealed a vertical height of only 7 mm in the premolar region.The patient was explained to that the placement of an implant of an adequate length was not possible unless the bone height in that region was improved upon by an augmentation procedure.

Treatment considerations

The patient was selected for a procedure under the SA3 category according to Carl E.Misch. (Table I).The patient did not have any of the contraindications for a sinus surgery. Since the patient was a smoker, a cessation protocol was introduced which included stopping smoking 15 days before and 4-6 weeks after surgery. A detailed informed consent was taken from the patient. The medications which were a part of the protocol are as listed.

Augmentin	- twice daily	1st - 6th day
Ceftin	- twice daily	
Dexamethasone	1st -3rd day	
Tylenol 3	- Post operatively	

Surgical procedure

The procedure was done under profound asepsis. Intraoral and extra oral scrubbing was performed. An infraorbital and a greater palatine nerve block were used for anesthesia. A crestal incision was placed slightly towards the palatal aspect. Two vertical incisions were made. One was made slightly anterior to the first premolar placing it approximately 10 mm from the anterior wall of the sinus. Another vertical incision was given as far posteriorly as possible. The base of the flap raised was wider than the apex giving adequate access and visibility. The access window was created using a No: 6 round bur under copious irrigation. The margins the window were made smooth and a direct access to the sinus membrane was achieved. A soft bladed soft tissue curette was used for lifting the sinus up (Fig 1). An implant of length 3.75 mm and diameter

Fig.1 - Sinus Lift

Fig.2 - Implant Placement

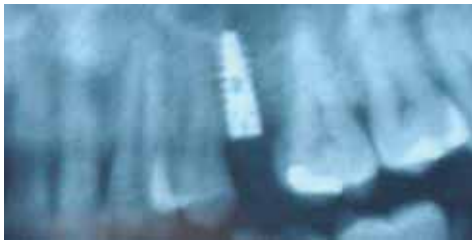

Fig 3 – OPG Post surgery

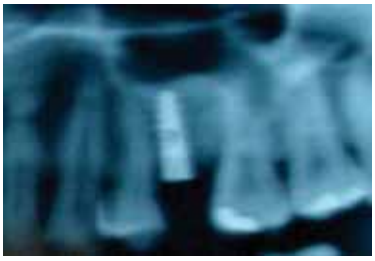

Fig 4 – OPG 7 months

Fig 5- Prosthesis

Table I

Treatment	Height	Graft healing time	Implant healing time
SA1	>12 mm		4- 6 months
SA2	10-12mm	4- 8 months	
SA3	5-10mm	2- 4 months	4- 8 months
SA4	< 5mm	6-10 months	4-10 monhts

13 mm (Adin toragues) was selected for the patient. The sequential drills were put and the implant was inserted (Fig 2). The apical end of the implant could be visualized on the upper end of the osteotomy beneath the sinus.At this stage the stability of the implant was measured with a Resonance frequency analyzer (Osstell mentor, Sweden). A value of 65 was obtained indicating good stability. A crystalline hydroxy apatite graft material (Zybograft) was mixed with saline and blood and packed under the sinus floor and to all sides of the implant and a collagen barrier membrane was placed .The flap was closed and sutured and post operative instruction were given to the patient which included not to blow the nose and not to smoke along the proper intake of medications. OPGs were taken immediately after surgery (Fig 3), at 3 months and 7 months (Fig 4). Bone formation apical to the implant placed was evident from the radiographs. Impression for the final prosthesis was taken using a closed tray technique with the aid of transfer copings. A porcelain fused to metal restoration was given for the patient on the implant abutment. The restoration that was given fulfilled both the esthetic and functional requirements (Fig 5).

Discussion

Installation of implants in severely atrophic maxillae is a serious challenge within the field of Implantology. The posterior maxilla zone is a particularly compromised area due to the sinus pneumatization, bone reabsorption after tooth loss or the sum of both circumstances. Bone augmentation procedures are an essential part of implant protocols in the posterior maxilla because of the unique pattern of bone resorption seen in this region.[4] A minimum length of 10 mm is advocated by Misch for prolonged success of a prosthesis in this region. According to him maxillary sinus floor is the most predictable area for bone growth in the oral cavity. Other materials which can contribute to graft material are autogenous bone, irradiated cancellous bone, DFDB, PRP, and antibiotics.[5,6,7] The question about the quantity of the grafting material is under discussion .According to several authors, small quantity of grafting material mixed with blood from the operative field is sufficient to maintain the required volume. There are authors who do not recommend the placement of any such material, relying entirely on the blood clot.[8, 9] The loading of the implant should be delayed at least 6-8 months to promote adequate healing. The final prosthesis that is given to the patient should have only light centric contacts and no eccentric contacts.[10]

Conclusion

Prosthetically driven implant placement is the need of the hour.Surgical procedures play an important and inseperable part of an implant surgery. Replacing the missing tooth properly should be the ultimate goal of any implant surgery.

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The association between periodontal disease and cancer

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Abstract

The association between periodontal disease, tooth loss and several systemic diseases including cancer ,cardiovascular disease and pre term birth have been investigated in recent studies. Estimates of prevalence vary between races and geographic regions, with a marked increase in the occurrence of periodontal disease with advancing age .Worldwide estimates for the prevalence of severe periodontal disease generally range from 10 to 15 percent.

Several studies have reported associations between periodontal disease or tooth loss and risk of oral, upper gastrointestinal, lung and pancreatic cancer in different populations. In a number of studies, these associations persisted after adjustment for major risk factors, including cigarette smoking and socio economic status. This review provides a summary of these findings, discusses possible biological mechanisms involved, and raises methodological issues related to studying these relationships.

Introduction

Periodontal disease, a chronic, destructive condition affecting a large portion of the adult population of the world, is one of the major causes of tooth loss in adults.The disease is characterized by a chronic oral bacterial infection which results in inflammation of the gums, leading to the gradual destruction of the periodontal tissues and alveolar bone supporting the teeth. Periodontitis cases were defined as individuals who had at least three tooth sites with clinical attachment loss greater than or equal to 4mm,and at least two sites with pocket depth greater than or equal to 3mm. Worldwide prevalence of the disease varies by race and geographic area, with older populations typically experiencing higher rates of periodontitis. Estimates of global prevalence of severe periodontal disease generally range from 10 to 15 percent, although upto 90% may be affected by some form of milder periodontal disease, including gingivitis.In addition to age and race, other known risk factors for periodontal disease include gender, body mass index[BMI], tobacco, diabetes, and nutrition. The impact of diabetes mellitus on periodontal disease has been shown to be independent of other major risk factors.[1] Populations with low socio economic status and those with limited access to dental care may also be at an increased risk for the disease.[1] Research on the genetic component of adult periodontitis suggests that about one half of cases may be heritable.

Role of bacteria

The bacteria identified to most likely play an etiologic role in the development of periodontal disease include Porphyromonas gingivalis, Actinobaccillus actionmycete-mcomitans, Tannerella forsythensis andTreponema denticola. However, many other pathogens have been identified in periodontal lesions, including human cytomegalovirus and the carcinogenic Epstein Barr virus. Periodontal disease progression is signaled by a shift in the bacterial makeup of the dental biofilm from largely aerobic Gram-positive bacteria to a pathogenic infectious state dominated by anaerobic Gram-negative organisms.[2] Hence the onset of periodontal disease is not due to the invasion by a new strain of bacteria but by a shift in the dominant strain of the existing organism. It is believed that the inflammatory mediators cause a breakdown of pathways responsible for immune resolution.[2]

Newer epidemiologic research has linked periodontal pathogens to several systemic diseases, including cardio vascular disease,diabetes mellitus and preterm birth.[2] Also an association has been noted between periodontal disease and cancer risk in different tissues like the mouth,upper gastro intestinal system,lung and pancreas. A review of the current literature in this area is presented.

Oral cancer

Oral hygiene status measure has been considered a potential risk factor for oral cancer for many decades. The main risk factor for the development of oral cancer are tobacco and alcohol consumption, both of which are associated with dental hygiene and therefore likely to be an etiological factor for tooth loss. In addition, it was noted that an infection with strains of Human Papilloma virus[HPV] was an independent risk factor for the development of oral cancer, particularly in the tonsils, oropharynx and oral cavity. A 2-3 fold increase in risk of oral cancer was observed in men for any tooth loss with and without tooth replacement and a 5-8 fold increase in risk was seen for the same comparison in women. The authors of this study hypothesize that

chronic trauma and irritation of the oral mucosa may play a role in carcinogenesis. The connection between tobacco, alcohol, dentition and dietary factors was examined and it was found that a significant 3 fold increase in risk of oral cancer for participants who lost 11 or more teeth compared to those who lost none, after adjustment for alcohol and smoking.[3] IIn summary, most of the studies that have quantitatively examined the association between tooth loss and oral cancer have observed a 2-3 fold significant increase in risk from tooth loss after controlling for smoking and alcohol use.

Upper Gastro Intestinal and Gastric Cancer

The relationship between tooth loss or periodontal disease and upper gastro intestinal cancer, including cancers of the upper aero digestive tract[UADT], esophagus, and stomach has been assessed in a number of studies. It was observed that the loss of more than 10 teeth led to a two fold increase in the chance of gastric cancer. In Linxian in the People's Republic of China, people experience tooth loss early in life, as dental care is difficult to attain. This population experienced extra ordinarily high rates of esophageal and gastric cardia cancer. The greatest risk associated with tooth loss for all studied cancers was observed among participants less than 50 years old. Also it was seen that there was a significant 2 fold increase in the risk of gastric non-cardia adenocarcinoma for edentulous individuals compared to individuals who lost 10 or fewer teeth.

Lung Cancer

There was a statistically significant 73% increase in risk of dying from lung cancer for individuals with periodontitis after adjustment for age, gender, socio economic status, smoking habits, vitamin A and C consumption, and alcohol intake.[4] However, the association no longer remained significant when the adjusted analysis was restricted to never-smokers.[4] It was also reported that in addition to an increased risk of lung cancer, there is an increased risk of pancreatic cancer in individuals with periodontitis.[4] The association between periodontal disease and pancreatic cancer was stronger among those who were non smokers. But more work is needed to confirm these findings and explore potential biological mechanisms.

Discussion

Many a times, it has been suggested that any observed association between tooth loss, periodontal disease and cancer may be due largely to residual confounding by unmeasured smoking or socio economic factors.[4,5] Smoking has been identified as a major modifiable risk factor for developing periodontal disease. The relative risk of destructive periodontal disease for a smoker is estimated to be 5 to 6 fold higher than that of a non-smoker. This estimate increases for heavy smokers, with a 10 to 15 fold increase in risk of periodontal disease compared to non-smokers. It has been suggested that studies on periodontal disease and systemic disease should be restricted to never smokers in order to reduce the influence from smoking. But the concern of residual confounding by smoking may not apply to all cancers. For example, the increase in risk of gastric cancer associated with smoking is much lower than for lung cancer. Mechanisms of carcinogenesis differ by site. For example; bacteria may play a more direct role in carcinogenesis in the mouth or lung, whereas in more distant organs, systemic inflammation or nitrosamines may play a more important role.

Chronic inflammation induced by periodontal pathogens serves to promote already initiated cells, which leads to the breakdown of normal cell growth control and potential carcinogenesis.

Periodontal bacteria also may undergo carcinogenic transformation. Poor oral hygiene and periodontal disease and tobacco use and certain dietary factors causes formation of endogenous nitrosamines in the oral cavity by nitrate reducing bacteria. These nitrosamines are carcinogenic and may explain the aforesaid associations.

Conclusion

To date, only a limited number of studies have reported associations between periodontal disease or tooth loss and cancer risk, and most have focused on oral and gastro intestinal tract cancers. But associations with oral, gastric and pancreatic cancers tend to persist despite tight control for smoking. The risk of oral cancer is approximately two fold higher in individuals with extensive tooth loss. Studies on lung cancer and total cancer suggest an increased risk from periodontal disease, although the associations are weaker, and more likely influenced by smoking and other non casual factors. Future research is warranted to confirm present findings using more specific measures of periodontal status and to explore this observed association among never smokers.

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Role of Prosthodontists in the oral care of critically ill patients

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Abstract

Prevalence of trauma to oral tissues in the comatose patient is not well documented, but when it occurs it is quite destructive and distressful for both patient and family members. A team effort is needed in the management of the comatose patient with self-inflicted oral trauma. The cause of self-injurious behavior and clinical symptoms varies. Lack of control over the masticatory cycle in the comatose adult patient may sometimes result in neuropathologic chewing, which may be the result of severe brain damage due to a closed head injury, hypoxia and septic shock. Numerous appliances and techniques have been advocated: occlusal bite planes, ratchet mouth props, padded tongue blades and intermaxillary fixation, and mandibular-cast silver caps with acrylic bite-blocks. There are no standards, but it is universally accepted that a removable device is desirable for long-term use in comatose patients. Prosthodontist has a definite role in the design and fabrication of these appliances.

Introduction

Patients admitted in intensive care unit are vulnerable to oral disease due to low immunity, xerostomia due to nasal oxygen, mouth breathing, restriction of food and fluid and intermittent suctioning of the airway. Neuro-pathologic reflexes initiate involuntary chewing and clenching which can cause trauma to oral mucosa. Trauma to oral soft tissues in critically ill patients is very common and needs to be addressed to by the Prosthodontist . One of the most common cause is neuro-pathogenic chewing which is characterized by involuntary movements of the jaw. Masticatory movements are normally rhythmic, automatic and powerful. Tongue movements are well coordinated with the masticatory movements of the mandible. Neuronal damage of the cerebral cortex, hypothalamus, or reticular/pyramidal systems due to closed head injury, septic shock, and/or hypoxia which in turn initiates neuropathologic mastication characterized by uncoordinated myotonic activity of the masticatory muscles and tongue. During episodes of hyperactivity, clenching, masticating, gnawing, and grinding, occur and produce severe injury to the tongue and/or orofacial structures[1]. The comatose patient often exhibits powerful (300 psi) ruminatory reflex chewing patterns which are extremely difficult to control[2](Fig 1). One of the most significant factors which is of concern in a critically ill patient is the inability to perform essential care themselves and they are totally dependent on nursing staff for their personal and oral care. An early and quick response may minimize the extent of soft tissue trauma. Management of these cases are designed according to the severity of the injury[3]. Mild neuropathological mastication may respond well to a bilateral bite block device which can be used for a short term[4]. Severe cases require a custom-made fixed devices. Numerous appliances and techniques have been advocated viz occlusal bite planes Fig (2), Mouth props Fig (3), Padded tongue blades, Intermaxillary fixation Fig (4), Mandibular-cast silver caps with acrylic bite-blocks, Stock fluoride trays Fig (5), Tongue guards / mouth guards Fig (6) and a modified retainer Fig(7) . Materials used for making these devices are polymers such as acrylic resins and metals like silver and stainless steel[1]. There are no standards, but it is universally accepted that a removable device is desirable for long-term use. An appliance must be simple in design and be well retained and easily serviced. Gaining access to the oral cavity and patient compliance in wearing the appliance would dictate the success of the treatment.

Occlusal bite planes – Occlusal bite planes are removable dental appliances carefully molded to fit the upper or lower arch of teeth. These bite planes are typically made of heat-cured acrylic resin. Soft acrylic or light cured composite, or vinyl splints may be made more quickly and cheaply, but are not durable, and hence indicated for short-term use. Soft splints are preferred in children to accommodate growth changes.

Mouth Props - Mouth prop is made of non elastic foam such as polyurethane, foamed polyethylene, foamed epoxy which help in retaining the mouth open. The block or prop is made with different cross sectional dimensions so that the desired mouth opening can be achieved without fatigue to the jaw muscles. When the teeth indent into the foam plastic material, the block is locked in place against any slippage and is disposable after use.

Padded tongue blades - This is made by wrapping

Fig.1 Trauma to oral soft tissues

Fig. 2 Occlusal bite plane

Fig. 3 Mouth Prop

Fig. 4 Intermaxillary fixation

Fig. 5 Stock fluoride trays

Fig. 6 Mouth guard

Fig. 7. Modified retainer

adhesive tape around tongue depressor blades. It is mostly used by health care providers during oral examination and while maintaining oral hygiene.

Intermaxillary fixation - Intermaxillary fixation using arch wires in combination with hard acrylic devices was used to prevent neuropathologic chewing. This was more of a surgical management, at times painful for the patient and could not be removed immediately in case of emergency. If the wire or rigid plastic components break they create jagged, virtually non-detectable foreign bodies which could be aspirated into the lungs. These may also lacerate the throat, larnyx or soft tissue of the oral cavity.

Stock fluoride trays - The stock fluoride trays were useful as an initial or interim device in the case of hospitalized unconscious paediatric patients with uncoordinated mandibular movements or clenching.

U-shaped oral appliance - A U-shaped oral appliance is formed from acrylic resin material (Fig.8 a,b,c). Typically, this is about 3mm in thickness, although other thicknesses can be used. The appliance has a generally U-shaped body formed by an extra-oral leg and an intra-oral leg and a centrally curved contour in between the two. A periodic change of appliance position is desirable to prevent chronic soreness and cutting of the mouth. This was not possible with the prosthesis units used before. This appliance gives the feasibility of being easily switched from side-to-side which prevents excessive irritation to the corner of the mouth. This also prevents unilateral compression to the teeth and their supporting structures. Its insertion and removal is simple, therefore it can be easily used by either medically skilled or unskilled attendants of the patient[2].

Conventional mouth guard - A conventional mouthguard is made using acrylic with adequate coverage of teeth to ensure good retention, but at the same time not overly extended to avoid impingement on soft tissue and muscle attachment (Fig 9 a,b,c). A long flexible handle made of stainless steel wire is attached to the anterior portion of the mouthguard[5] ; this could be secured to the patient's hospital gown with a safety pin to prevent accidental loss or possible inhalation of the appliance. The labial portion of the

Fig 8a Wax pattern fabricated and placed on cast for U-shaped oral appliance

Fig 8b Wax pattern for U-shaped oral appliance flasked

Fig 8c U-shaped oral appliance

Fig. 9a Wax pattern fabricated and placed over cast for Conventional mouth guard

Fig. 9b Wax pattern for Conventional mouth guard flasked

Fig. 9 c Conventional mouth guard can be tied with safety guard to the clothing

Fig.10a Wax pattern fabricated and placed between the casts for single piece occlusal guard

Fig.10b Wax pattern for single piece occlusal guard flasked

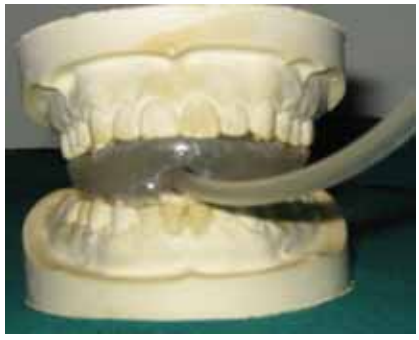

Fig.10c Single piece occlusal guard

appliance is slightly thickened (8 mm) by layering to prevent the lips from becoming trapped between the anterior teeth. The appliance can be kept in the mouth at all times except when removed for daily oral hygiene procedures. The practice had been to construct either a full coverage mouthguard or one covering the anterior sextant using traditional materials; however, these materials lack proper adaptation to the dentition, hence were not adequately retained. Dislodgement of earlier appliances may cause even more serious complications if it is inhaled. It can be modified to make it, a simple unilateral arch appliance of acrylic. This design, which covered two-thirds of the mandibular occlusal surface, is preferred only for short term. In the long term, a full arch stent would be more appropriate to prevent an imbalance to the occlusion and inadvertent overeruption of teeth not covered by a partial appliance.

One- piece occlusal guard - This was designed to prevent further trauma from the protrusion of the patient's tongue between the occlusal guard and the teeth[5]. The thickness of this 1-piece occlusal guard was kept 15-20 mm at the incisors[6] (Fig.10 a,b,c). This thickness also allows room for the suction tube. If the occlusal guard is too thick, it will strain the patient's facial muscles. The occlusal guard was designed to cover approximately 2-3 mm of the facial surfaces of the incisal edges of the teeth above the height of contour. The design incorporated coverage of the entire palatal

surface of the teeth and 3-5 mm of the palatal soft tissue. The wax pattern was fabricated using pink modelling wax. A lingual extension of wax, 2 mm thick, was added to the pattern. It was placed 3-5 mm posterior to the mandibular incisal contact points and extended entirely down the lingual surfaces, from the mandibular left to right premolars, to prevent the tongue from moving forward. The wax pattern was then invested and processed. Clear denture acrylic resin was packed and heat polymerized using conventional complete denture techniques, deflasked, and polished. A round opening 8-10 mm in diameter was created in the occlusal guard between the maxillary and mandibular teeth to allow access for a suction tube. This design of this occlusal guard offered several advantages over other custom designs and other commercially available products: (1) reflects oral tissue and the tongue from the occlusal table, which may accelerate healing of the traumatized tissues; (2) permits a full range of mandibular motion by using a flat occlusal plane design; (3) allows placement of a suction tube when rinsing and cleaning the mouth without removing and reinserting the prosthesis; (4) is easily fabricated and cleaned using procedures similar for conventional dental occlusal guards and (5) is durable, rigid, resistant to fracture, odorless, and can be used over a long period of time. The possible disadvantages of this occlusal guard are (1) it requires intraoral impressions (2) it requires an additional laboratory fee and (3) it involves the risk of possible dislodgement of the occlusal guard during powerful masticating movement.

Conclusion

These appliances should not worsen an already severe problem. The objective is to provide an oral injury prevention device that is durable with properties to withstand extreme and prolonged biting force without becoming fragmented or perforated. It should also allow for normal mandibular movements and permit regular oral hygiene and oral examination in comatose patients. At the same time it should not require the use of any special sedation for installation, removal or maintenance.

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Retrofitting a restoration to an existing prosthesis

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Abstract

Restoring a tooth to fit and function within an existing prosthesis poses a clinical challenge. This article describes a step by step procedure of retrofitting a full metal crown to an existing cast partial denture and the retrofitting of a dowel and core to an existing full metal ceramic crown.

At times we are faced with the clinical challenge of restoring a tooth to fit and function within an existing prosthesis. The prosthesis could be a fixed or a removable one. This article presents two case reports wherein a retrograde type of treatment modality had been adopted to fulfil the patient's esthetic and functional demands. Based on the fabrication methods, the various techniques can be categorized into direct (principally intraoral), indirect (without the patient) and indirect-direct (with intermediate intra oral steps).[1]

CASE REPORT - 1 (Retrofitting a full metal crown to an existing cast partial denture using the indirect technique)

A fifty five year old male patient was referred to the Department of Prosthodontics, Government Dental College, Goa for restoration of an endodontically treated maxillary left second molar with a full crown restoration [Fig. 1].

On examination, it was seen that the tooth had a large amalgam restoration and was serving as an abutment for the existing cast partial denture prosthesis. The cast partial denture was acceptable in terms of retention, stability and support. The patient did not want a new prosthesis nor was he ready to leave the prosthesis behind for completion of the laboratory procedures. The clinical challenge faced in this situation was the designing of a full crown restoration to function within the existing cast partial denture and the uninterrupted use of the prosthesis by the patient.

Treatment procedures

The crown was fabricated using the removable partial denture analog procedure.[1] The various steps involved were as follows

Clinical steps

The impression of the tooth to be prepared was made using elastomeric impression material to serve as a matrix for fabrication of the provisional restoration [Fig.2]. The tooth was prepared for a full metal crown and an elastomeric impression of the abutment including the full arch was made without the partial denture in position. The impression was poured in die stone. Inter-occlusal records were made for mounting of the working casts.

An analog impression of the prepared tooth was made [Fig.3]. Here polyether occlusal registration material was extruded over the prepared tooth. Immediately the cast partial denture was seated in position and the patient was asked to close in maximum intercuspation. A moistened cotton applicator was used to expose the outer surface of the retentive clasp arm, reciprocal arm area and occlusal rest before polymerization of the polyether registration material. The cast partial denture along with the analog impression was removed from the oral cavity [Fig.4]. The gross excess material from the outer and inner surface of the clasp assembly was trimmed away.

The analog impression was then separated from the cast partial denture in an apical direction and kept aside. Critical portions of the partial denture were highlighted on the analog impression [Fig.5]. Portions highlighted were the retentive arm, reciprocal arm area, occlusal rest, portions of the denture base and teeth that engaged the abutment when the cast partial denture was seated back in the patient's mouth.

Provisional restoration was fabricated using a direct technique. Autopolymerizing resin was mixed and poured into the matrix and the matrix was seated on the prepared tooth. On curing, the matrix was removed and the provisional restoration so formed was finished and polished. It's relation to the direct retainer was verified and then luted in the patient's mouth [Fig.6]. The patient was allowed to take back the cast partial denture.

Laboratory steps

Following die cutting and mounting of the working casts, the analog impression was placed on the die. Pattern autopolymerizing resin was applied to the analog impression in the areas marked as critical [Fig.7]. A retentive hole was created in the edentulous area of the cast and resin was added to the hole to form a base for the analog. The analog was then attached to the base using additional increments of resin. The clasp analog was made as rigid as desired by adding resin to the

Fig. 1- Endodontically treated maxillary left second molar serving as an abutment for a cast partial denture

Fig. 2- Matrix for the provisional restoration

Fig. 3- Analog impression with polyether occlusal registration material

Fig. 4- Analog impression with the cast partial denture

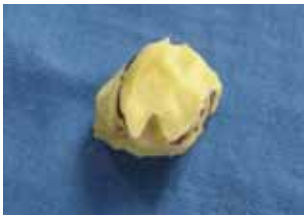

Fig. 5- Critical areas highlighted on the analog impression

Fig. 6- Provisional restoration luted in place

Fig. 7- Clasp analog formed in pattern resin

Fig. 8- Analog used to form the wax pattern

outer aspects of the analog as this surface does not affect the contours of the abutment crown. The clasp analog was removed and replaced as needed first to form the wax pattern [Fig.8] and then to refine the full metal crown [Fig.9].

Clinical steps

The crown was checked for its fit, contours, occlusion and for the proper adaptation of the direct retainer to its surface. It was finally luted in position [Fig.10].

Discussion

Although many methods of fabricating a crown to fit an existing partial denture have been described in literature 2-5, the analog procedure described by Gus J. Livaditis1 was adopted. This method allowed the accurate transfer of all essential components and information from the mouth to the working cast and at the same time the patient was not subjected to the inconvenience of being without the partial denture between office visits.

The advantages of using the removable partial denture analog procedures are:- 1) This method accurately reproduces the form of the clasp at the tooth surface where it is critical. 2) Separate impressions for the abutment and analog helps in eliminating the difficulties associated with separation of a combined impression. 3) This technique can replicate all types of clasp forms and can generate all types of fixed prosthodontic retainers to function harmoniously within the existing partial dentures.

Use of analog procedure is contraindicated in tooth supported removable partial dentures with long clinical crowns and numerous long parallel guide planes where a precise path of insertion is critical. It is also contra-indicated in cases with very short abutments with minimal guide planes where a precise path of insertion/withdrawl is essential to provide even a minimal degree of retention.

CASE REPORT - 2 (Retrofitting a dowel and core to an existing metal ceramic crown using the direct technique)

A thirty two year old male patient reported to the Department Of Prosthodontics, Government Dental College, Goa with the chief complaint of fracture of the maxillary right lateral incisor which was restored with a full metal ceramic crown [Fig.11].

On examination, it was seen that the tooth was endodontically treated. The fracture was restricted to the coronal tooth structure without extending apically to intersect the finish line leaving around 2-3mm of sound tooth structure coronal to the gingival margin. The crown exhibited adequate margins with acceptable contours and esthetics. The tooth required the fabrication of a dowel and core. The clinical challenge faced in this situation was the retrofitting of a dowel and core to the existing crown.

Treatment procedures

A custom dowel and core was fabricated using an acrylic resin pattern. The various steps involved were

Clinical steps

Using a high speed carbide round bur and air abrasion, the bulk of luting cement and remnants of tooth structure were removed from the inner surface of the crown. The inner surface of the crown was inspected for any rough areas and undercuts that would interfere with the seating of the dowel-core. The post space was prepared with anti-rotational features. Dowel was prepared using autopolymerizing resin. The prepared dowel was shortened and trimmed around the periphery to remove the excess resin that would

Fig. 9- Analog used to refine the contours of the full metal crown

Fig. 10- Full metal crown luted in place

Fig. 11 Fractured maxillary right lateral incisor which was restored with a full metal ceramic crown

Fig. 12- Pattern for dowel-core formed using autopolymerizing acrylic resin

Fig. 13- Cast dowel-core luted in place

Fig. 14 (a)-Full metal ceramic crown luted in place (labial view)

Fig. 14 (b)-Full metal ceramic crown luted in place (incisal view)

interfere with the complete seating of the crown.

The core was fabricated using the existing crown as a matrix. The crown was lubricated and filled with resin and placed over the dowel and remnants of the prepared tooth. The acrylic resin around the margins was scraped away and the margins were checked with a sharp explorer to confirm the complete seating of the crown.

Once the acrylic resin reached a tough, doughy consistency, the crown was separated from the resin. The inside of the crown surface moulded the acrylic resin into the shape of a prepared tooth [Fig.12]. Excess material from the margins was removed and the crown was reseated to complete the curing process. The polymerized resin pattern was then cast. The cast dowel-core was checked for its fit and contour and luted [Fig.13]. The metal ceramic crown was then luted in position [Fig.14 - a, b].

Discussion

Fracture of coronal tooth structure under a crown is very common[6] and could be very distressing to the patient making useless an otherwise good prosthodontic retainer. Various techniques of fabrication have been reported in literature[7,8]. Most of the techniques described use the existing crown as a matrix. The existing crowns can be reused only if it satisfies two criteria. First, the fracture should be restricted to the coronal tooth structure without extending apically to intersect the finish line. Secondly, the crown should exhibit adequate margins and have acceptable contours and esthetics[6].

Conclusion

Retrofitting of a restoration to function harmoniously with an existing prosthesis presents a clinical challenge. The fabrication methods are highly technique sensitive. However, proper execution of these techniques prevents the fabrication of a new prosthesis.

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Effects of aloe vera gel, aloe vera irrigation in treatment of chronic periodontitis - A clinico-microbiological study

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Abstract

Background: Aloe vera is a natural product that is now a days frequently used in the field of dentistry. Aloe vera has been shown to enhance defense mechanisms, and it has a variety of components to help combat periodontal disease and other oral conditions.

Aim: The aim of the study was to compare the efficacy of aloe vera gel delivered in periodontal pockets with aloe vera subgingival irrigation and scaling and root planning alone in treatment of chronic periodontitis on clinical and microbiological parameters

Method: 27 sites with 9 sites in each group were randomly allocated to 3 groups:

i)aloevera gel plus scaling and root planning ii)aloe vera subgingival irrigation plus scaling and root planning iii)scaling and root planning alone done at baseline, 1 week,2 weeks interval.

Clinical parameters including plaque index, gingival index was done at baseline, 1 week, 2 weeks,3 weeks interval and probing depth and relative attachment levels were measured at baseline and after 3 weeks.Assessment of various microbial morphotypes was done using culture technique at baseline and after 3 weeks interval.

Results: The result of this investigation demonstrate that when used as a part of regular oral hygiene and professional care, aloe vera gel provided significantly greater plaque (60%) and gingivitis (46.93%)reductions than aloe vera subgingival irrigation(42% PI and 27.78% GI) and scaling and root planing alone(38.89% PI and 18.06% GI)

Conclusion: Aloevera gel provided greater improvement in clinical parameters and in inhibiting the growth of pathogenic oral bacteria when delivered subgingivally compared to aloe vera irrigation and scaling and root planning alone

Introduction

The treatment of chronic periodontitis focuses on stopping the destruction of periodontal support by the elimination of some pathogenic bacteria present in the periodontal pocket.This is routinely performed by mechanical scaling and root planning (SRP), when subgingival calculus is removed together with the majority of the bacteria. Variation in the ability of the dentist to gain access in deep and tortuous pockets and bacterial invasion into gingival and dental tissues often results in substantial variation in effectiveness of SRP.This led to the search for chemotherapeutic agents in conjugation with mechanical removal of subgingival biofilms and infected calculus that may shield pathogenic bacteria.[1]

Chlorhexidine digluconate is probably the most widely used antiseptic in periodontal treatment.However its activity is greatly reduced in presence of organic matter that exists at high levels in subgingival sites.[2]

The interest in plants with antibacterial and antiinflammatory activity has increased as a consequence of current problems associated with the wide-scale misuse of antibiotics that induced microbial drug resistence Natural products such as Astronium urundeuva, punica granatum,calendula, curcuma zedoaria and other herbal products have been tested with effective results.[3] Aloe vera (family liliacae) grows naturally in tropical and subtropical regions with warm climate.

Aloe vera has a long history of healing power. Its ability to heal burns and cuts and soothe pain has been documented as far back as the 10th century due to its anti inflammatory, antiseptic and antimicrobial properties.[4]

Aloevera, has been used since decades in various medicinal and beauty products, due to its various miracle properties and constituents and so also called as the wonder plant.

Its role in dermatology, burns, rheumatic pains, arthritis, ophthalmology, liver infections etc. has significantly been proven.[5, 6,7]

In dentistry, role of aloe vera is not unknown, acute mouth and gingival lesions are improved by direct application on gingival abscesses, herpetic viral lesions, aphthous ulcers and many more.

Aloe vera has been shown to enhance defense mechanisms, and it has a variety of components to help combat periodontal disease and other oral conditions.

Recently, aloevera has been proved to be effective in treatment of bleeding and painful gums due to its

Table I: *Mean reduction in Plaque scores*

Time points	*srp+ aloe gel*	*% improve ment*	*srp+aloe irrigation*	*% improve ment*	*srp (control)*	*%improve ment*	*gel v/s control (p-value)*	*irrigation v/s control (p-value)*
Baseline	3.0555± 0.4639	-	2.7778± 0.5657	-	2.7778± 0.47790	-	ns	ns
1 week	1.444± 0.3909	52.73%	1.6667± 0.3	39.99%	1.7222± 0.4409	38.01%	p<0.5	p<0.5
2 weeks	1.3889± 0.4859	54.54%	1.3333± 0.3536	52.00%	1.7222± 0.2635	38.04%	p<0.5	p<0.5
3 weeks	1.2222± 0.6180	60%	1.6111± 0.4167	42.00%	2±0.220	38.89%	p<0.5	p<0.5

Table II: *Mean reduction in gingival index*

Time points	*srp+ aloe gel*	*% improve ment*	*srp+aloe irrigation*	*% improve ment*	*srp (control)*	*%improve ment*	*gel v/s control (p-value)*	*irrigation v/s control (p-value)*
Base Line	2±0	-	2±0	-	2±0	-	ns	ns
1 week	1.6667± 0.3307	16.66%	1.75± 0.3536	12.50%	1.9721± 0.8333	1.39%	P<0.5	p<0.5
2 weeks	1.3889± 0.3974	30.55%	1.5833± 0.375	20.84%	1.75± 0.25	12.50%	P<0.5	p<0.5
3 weeks	1.3611± 0.4526	46.93%	1.4444± 0.3486	27.78%	1.6389± 0.2826	18.06%	P<0.5	p<0.5

anti inflammatory properties.[7]

The antimicrobial effect of a dentrifrice and mouth rinse containing aloe vera has been demonstrated in which the phytotherapic agent inhibited the growth of diverse oral microorganisms like streptococci,A.viscosus and C.albicans.[8]

Therefore, the purpose of present study is to compare the clinical and antimicrobial effectiveness of two forms of aloe vera applied subgingivally i.e aloe vera gel and aloe vera irrigation when compared to control.

Materials and Method

This study was designed in the department of periodontics and oral Implantology at ITS-CDSR Murad Nagar, Ghaziabad.

The clinical and microbiological study was designed as a comparative evaluation of a group of patients over a period of three weeks.

Inclusion Criteria:

- Patients within the age group of 30-50 years and with pocket probing depth of 4-7mm
- Patients without any history of systemic disease
- patients should not have been under antibiotic coverage for last 6 months

Exclusion Criteria:

- individuals under antimicrobial therapy at least 1 month prior to the study
- Individuals using mouthrinses or dentifrices containing substances with antiinflammatory properties
- Individuals allergic to drugs or chemicals used in the study products.
- Pregnant or lactating mothers
- Smokers

Patients initially received thorough oral hygiene instructions.Scaling and root planning using ultrasonic scalers and hand instruments was completed at the baseline visit itself.Patients were randomly divided into 3 groups:

Group 1: Scaling and root planing plus subgingival administration of aloe vera gel (Forever aloe gelly) with syringes with atraumatic needles.Periodontal pack was placed on the tooth to avoid spillage of chemical product onto the other areas of the mouth.

Group 2: Scaling and root planing plus subgingival irrigation with aloe vera mouth rinse (Forever aloe activator) using sterile syringe and blunt cannula. The cannula was gently inserted to the depth of periodontal pocket to assure delivery of irrigating solution to the entire pocket slowly irrigating for 1 minute

Group 3: Scaling and Root planing alone.

Patients were instructed not to rinse or drink any liquid for atleast 30 minutes.

Table III: *Mean reduction in pocket probing depth*

Time points	*srp+ aloe gel*	*% improve ment*	*srp+aloe irrigation*	*% improve ment*	*srp (control)*	*%improve ment*	*gel v/s control (p-value)*	*irrigation v/s control (p-value)*
Base Line	5±0	-	4.667± 0.7075	-	4.7778± 0.4157	-	NS	NS
3 weeks	3.7778± 0.8333	24.44%	3.7778± 0.9718	19.05%	4.111± 0.6009	16.22%	P<0.5	P<0.5

Table IV: *Mean reduction in Relative attachment level*

Time points	*srp+ aloe gel*	*% improve ment*	*srp+aloe irrigation*	*% improve ment*	*srp (control)*	*%improve ment*	*gel v/s control (p-value)*	*irrigation v/s control (p-value)*
Base Line	10.5± 1.5811	-	10.667± 1.75	-	10.3889± 0.8580	-	NS	NS
3 weeks	9.3889± 1.5964	10.58%	9.7778± 1.6415	8.33%	9.7222± 0.8854	6.42%	P<0.5	P<0.5

Periodontal variables:
Sites were evaluated for—

- Plaque index (Turesky Gilmore Glickman modification of Quigley Hein Plaque Index 1970)
- Gingival index (Loe &Silness 1963)
  (At baseline, 1 week, 2 week and 3 week interval)
- Probing depth
- Relative attachment level
  (At baseline, and 3 week interval)

Microbiological analysis-

Subgingival plaque samples were collected using a curette at baseline and after 3 weeks and were transported in thioglycolate broth media containing Hemin and Vitamin K for microbiological analysis using culture technique.Microorganisms monitored were—

Streptococci, Aggregatibacter actinomycetemcomitans, P.Gingivalis, P.intermedia

In addition to this examination, the hard and soft oral tissues were visually inspected for the presence of any adverse reaction by the same examiner. Statistical analysis was performed using student's t-test

Results

The test gel and irrigant had a good acceptance and did not show adverse effects, such as formation of abscess and ulcerations or allergic reactions.Only one subject in the test group reported, slight irritation when irrigation was done but was temporary,and did not occur on subsequent visits and he did not drop out the clinical trial.Results were compared for all 3 groups for clinical as well as microbiological parameters.

Plaque scores and gingival index were recorded at baseline, 1week and 2 weeks interval. Mean reduction or improvement in plaque index in all 3 groups was from 3.05 to 1.22 in aloe vera gel group, 2.77 to 1.61 in aloe vera irrigation group and from 2.77 to 2.0 in control group (Table I)

Mean improvement in gingival index showed percentage improvement when compared from baseline to 3 weeks interval was 46.93% in aloe vera gel group, 27.78% in aloe vera irrigation group and 18.06% in control group. (Table II)

Probing depth and relative attachment levels were measured at baseline and after 3 weeks and results obtained showed 24.44% mean reduction in probing depths in aloe vera gel group when compared with aloe vera irrigation group which showed 19.05% reduction and control group showed percentage improvement of 16.22% only. (Table III, IV)

Microbiological analysis: For all the 9 patients the difference from baseline to 3 weeks for streptococci, P.intermedia, P.gingivalis and Aggregatibacter actinomycetemcomitans were calculated for all the 3 groups. (Table V,VI,VII,VIII)

By using paired t-test to test the significant difference in each group for various microbiological parameters a significant difference was observed for gel and irrigation site for each of the 4 microorganisms at 5% level of significance ($p<0.05$)

However, maximum decay in percentage in difference was observed for Aa (between gel site to irrigation site) (74.13%) while it was least for Pi (9.77%)

Discussion

Aloe vera is a natural product contained in herbal dentifrices with commercial appeal on the control of plaque and gingivitis. Aloe latex contains anthraquinones, and enzyme bradykinase, which are chemical compounds that are used in healing and arresting pain because they are anti-inflammatory in nature.Aloe vera inhibits the cyclooxygenase pathway and reduces prostaglandin E2 production from arachidonic acid. Also, Aloe vera contains 6 antiseptic agents: Lupeol, salicylic acid, urea nitrogen, cinnamonic acid, phenols and sulfur. They all

Table V: *Mean reduction in number of streptococci*

	groups	mean±SD	P-value
streptococci	control	59555.6± 72737.73	P>0.05
	gel	123333± 39824.62	P<0.05
	irrigation	116889± 44800.79	P<0.05

Table VI: *Mean reduction in number of Prevotella intermedia(Pi)*

	groups	mean±SD	P-value
Pi	control	95555.56± 12692.07	P>0.05
	gel	14000± 18520.26	P<0.05
	irrigation	6044.44± 12835.6	P<0.05

Table VII: *Mean reduction in number of Porphyromonas gingivalis (Pg)*

	groups	mean±SD	P-value
Pg	control	2000± 14560.22	P>0.05
	gel	14444.4± 5822.61	P<0.05
	irrigation	10555.6± 4693.37	P<0.05

Table VIII: *Mean reduction in number of Aggregatibacter actinomycetemcomitans(Aa)*

	groups	mean±SD	P-value
Aa	control	6000+ 21236.76	P>0.05
	gel	10666.7± 7211.103	P<0.05
	irrigation	10277.8± 9010.79	P<0.05

have inhibitory action on fungi, bacteria and viruses.[7,9,10]

The results of the present study revealed significant improvements in all clinical parameters with maximum improvement in plaque and gingival scores as compared from baseline to 3 weeks follow up

Comparative evaluation shows maximum improvements in aloe vera gel group as compared to irrigation and control group

The findings of the present study are in agreement with those of Villalobos, et al.(2001), who observed a significant reduction in plaque and gingivitis after a 30-day use of mouth rinses containing *Aloe vera* associated to tooth brushing.[9]

There was no statistically significant difference in levels of Pg, Pi, Aa, streptococci in control sites throughout in our study. This indicates standardized oral hygiene instructions did not significantly affect these pathogen levels for a longer period of time

Although the manufacturer does not inform the concentration of *Aloe vera* in the product used in the present study, the percentage of therapeutic agent in a dentifrice usually range from 0.4% to 1.0% of the total formulation.

Conclusion

The result of this investigation demonstrate that when used as a part of regular oral hygiene and professional care, aloe vera gel provided significantly greater plaque (60%) and gingivitis (46.93%)reductions than aloe vera subgingival irrigation(42% PI and 27.78% GI) and scaling and root planing alone(38.89% PI and 18.06% GI)

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Case report

Biocompatibility of dental materials

* Manoj C. Kuriackose, * Praveena, ** K. Radhakrishnan Nair, *** Cherian KP, **** Veena Raj V.

Abstract

Biocompatibility is recognized as a fundamental requirement for any dental restorative material.Every dental material used has to undergo a series of testing before it can be marketed. Biocompatibility depends on the condition of the host, the properties of the material and the content of the material.Clinicians will likely to be continually overwhelmed by marketing informations on many new materials and claims of their clinical performance.Unconditional biocompatibility will often be claimed by manufacturer. This paper is discussing about the current biocompatibility issues of dental materials and various tests and clinical trials available to check the biological safety of a material.

Introduction

Biocompatibility is an interaction between the body and the material. Placement of a material in the body creates an interface that is normally not present. This interface is not static and it is the site of many dynamic interactions between the material and the body through which the body may alter the material or material may alter the body. The dynamics of these interactions will determine the biocompatibility.

Every dental material used has to undergo a series of testing before it can be marketed. This is essential for checking the biological safety of the material. ANSI/ ADA documents 41 describes these tests

Testing of Materials

There are three basic types of tests used to measure the biocompatibility of Dental materials.

1. The Invitro Test
2. The Animal Test
3. The Usage Test

1) The Invitro Test

It is the first screening test to evaluate a new material. It is performed outside of an organism. It is conducted in a test tube, cell culture dish, flask or other containers which may be in direct or indirect contact. They are fast, inexpensive, easily standardized and used for large scale screening of materials.

1) The Animal Test

The material is placed into an intact organism like rats, monkeys, guinea pigs, cats and dogs. It has the ability to allow an intact biological system to respond to a material. The material may interact with many complex biological systems within the animal. But it is expensive, difficult to control and time consuming.

1) The Usage Test

This is performed in animals or humans. The human clinical trial is the "Gold Standard" of usage test. The relevance of usage test to clinical practice is potentially high than any other test. But it is complicated, difficult to perform, expensive and involve legal liabilities and issues.

Each of these tests evaluate a material before it may be sold to the public. No single test can accurately estimate the biological response to a material and considerable controversy exists about the appropriate mixture of 3 basic types of tests.

Adverse effects from dental materials

The various adverse effects from dental material are toxicity, inflammation, allergy and mutagenicity.

* Toxicity is the earliest response studied. The first screening test used for almost all is a toxicity test. Materials are capable of releasing substances into a patient's body and release of these substance cause overt toxicity.

* Inflammation is the second fundamental type of biological response. The contribution of dental materials to inflammation reaction is especially important because pulpal and periodontal diseases are largely chronic inflammatory response to long term infections.

* Allergic reaction occurs when the body specifically recognizes a material as a foreign body and reacts disproportionately to the amount of the material present. It is dose-independent.

* Mutagenic reactions results when the components of the material alter the base-pair sequence of the DNA in cells. Several metal ions such as nickel, copper, berllyium and root canal sealers are mutagenic.

Current biocompatibility issues in dentistry

1) cements

Silicate cements and zinc phosphate cements have increased cytotoxic effects due to low pH even after 24 hours of setting. Zinc oxide eugenol have obdundant effect on pulp. Free eugenol can irritate soft tissues and

is a potent allergen, both from cements and impression materials.

2) Amalgam

It has both local and systemic effects. Local effects involve pathology affecting pulp and gingiva caused by corossion products, microbes and toxic elements from the restoration. Systemic effects include ingestion of corrosion products from saliva or bacterial plaque, contact dermatitis for dentist ,erythema of skin, tremors, metallic paste and mercuric poisoning.

3) Nickel

Nickel sensitivity is the most common cause of allergic dermatitis. It ranges from mucosal contact dermatitis to generalized dermatitis.

4) Beryllium

It has the highest risk to dental technicians during melting and trimming of alloys. It causes berylliosis, chronic disease like chest pain, general weakness to pulmonary dysfunction.

5) Acrylic resin

Allergic reactions are more commonly reported to autopolymerising resin than that of heat cured resins. It causes hypersensitivity reactions on oral soft tissues and inflammation of gingiva and mucosa.

No single test is used to evaluate the biocompatibility of a new material. But in vitro, animal and usage tests are used together. The original ANSI/ADA Document No.41 for biological testing of dental materials which was later updated (in 1982) uses the linear paradigm for material screening and divides testing into Primary, Secondary and Usage Tests.

1) Primary Tests

It is performed initially and often invitro in nature, only the material that "pass" these primary tests are tested in the secondary phase. It includes

- Cell culture test
- Mutagenesis Assay

2) Secondary/Intermediate Test

It is conducted in animals . In this inflammatory or immune response is conducted. It includes

- Sensitization tests(Punch test and subcutaneous test)
- Oral Mucous Membrane Irritation Tests
- Implantation Tests(for implants and endodontic materials)

3) Usage Test

It is conducted in humans. It includes

- Pulp capping/Pulpotomy Test
- Endodontic material Test
- Endosseous Implant material test

It should be noted that the final biological test will always be the human clinical trial. However, there should be minimal risk to the patient and it should not be unethical clinical trial.

Conclusion

Unconditional biocompatibility will often be claimed by manufacturer. It is difficult for clinicians to evaluate the biological safety of new materials and manufacturer's claims. So several critical steps will ensure an informed decision about biological safety which includes thorough knowledge of use of a material, composition of the material, conditions and durations of the test that are relevant. No material is 100% safe. The clinicians should think interms of risk and benefits and have to adapt a philosophy about the degree of risk he or she is willing to assume on the patient's behalf and should be communicated thoroughly and clearly which is essential for an informed consent.

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Congratulations

Dr V. IPE VARGHESE Principal, Govt Dental College, Kozhikode has appointed as **Registrar** of Kerala University for Health and Allied Science (KUHAS).

Dr GEORGE VARGHESE Principal in-charge, Govt Dental College, Kottayam has appointed as **Dean,** Faculty of Dentistry, Kerala University for Health and Allied Sciences.

Dr N O VARGHESE Principal, Govt Dental College, Trivandrum has appointed as **Dean,** Faculty of Dentistry, University of Kerala

Efficacy of protaper retreatment rotary file in removing guttapercha in two different obturation systems: Volumetric analysis using spiral CT

*Joel G. Varghese, ** D. Kandaswamy

Abstract

Objectives: To evaluate the efficacy of the Protaper Universal Retreatment system for Gutta percha removal from root canals.

Methodology: Fourteen extracted human single rooted teeth each with one root canal, were instrumented with 30 size .09 taper protaper files and filled using two techniques. Group 1 - cold lateral condensation, Group 2- Single cone technique. Removal of GuttaPercha (GP) was performed with protaper retreatment rotary instrument. The canals were instrumented in a crown down sequence using D1 file to remove filling material from coronal portion of the root canal. Middle & apical third of the canals were instrumented using D2 & D3 files, respectively using a brushing action with lateral pressing movements. D3 file was taken to the WL. GP removal was judged complete when the WL was reached and no more GP could be seen on the last instrument used in each group.

Result: Volume of remaining material was evaluated through Spiral CT and statistically analyzed.

Introduction

Residual necrotic tissue or bacteria beneath Gutta-percha or sealer can be responsible for periapical inflammation or pain. Thus, the main objective of nonsurgical retreatment is to remove all material filling from the root canal and to regain access to the apical foramen. Removal of Gutta-percha using hand files with or without solvents is time-consuming, especially when the filling materials are well condensed. Nickel–titanium (NiTi) rotary instruments have been used successfully in root canal cleaning and shaping. More recently, the ProTaper NiTi rotary system has been upgraded to the ProTaper Universal system, which includes shaping, finishing and retreatment instruments. The three retreatment instruments (D1, D2 and D3) are designed for removing filling materials from root canals[1]. Various experimental methods have been used to assess the quality of root fillings, such as radioisotope, dye penetration, fluid filtration bacterial leakage microscopic analysis, clearing technique and Micro CT. It has been reported that spiral computerized tomography (SCT) has been a useful tool in various in vivo and laboratory studies[6]. It was concluded that with SCT three dimensional volume measurements are possible without sectioning specimens thus avoiding loss of material.

Methodology

Specimen selection:

Fourteen single rooted maxillary central incisors were selected. Soft tissue remnants and calculus were removed. Collection, storage, sterilization and handling of extracted teeth followed the Occupational Safety and Health Administration (OSHA) guidelines and regulations (Reuben et al. 2008). Teeth with single straight canals were chosen whilst teeth with incompletely formed apices, calcified canals, fractures or resorption were excluded.

Tooth preparation

In group I (n=7) - An access cavity was prepared and a size10 K-file introduced until the tip was just visible at the foramen of the root. Cleaning and shaping were performed using a modified step-back flare technique. Canal preparation was carried out by the sequential use of K files up to size 30 at WL, a step-back procedure in 1 mm increments to a file size 50 was then carried out. Upon withdrawal of each instrument, canals were irrigated alternatively with 5.25% NaOCl and 17% ethylenediamine tetraacetic acid (EDTA).Canals were filled with GP and AH Plus sealer using a cold lateral compaction technique. Lateral compaction was achieved using additional accessory GP cones and standardized finger spreaders starting 1 mm short of working length. When the points prevented the spreader penetration beyond the coronal third of the canal, the canal was considered to be adequately filled and excess GP was removed at the CEJ using a heated condenser. In Group II (n=7) – Canal preparation was carried out by protaper rotary instruments, sequence followed by manufacturers

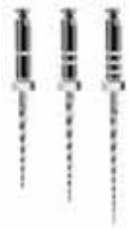


Fig. 1 Protaper retreatment rotary files D1, D2, D3

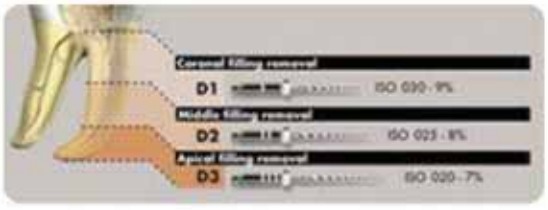


Fig. 2 Sequence of Protaper retreatment rotary files

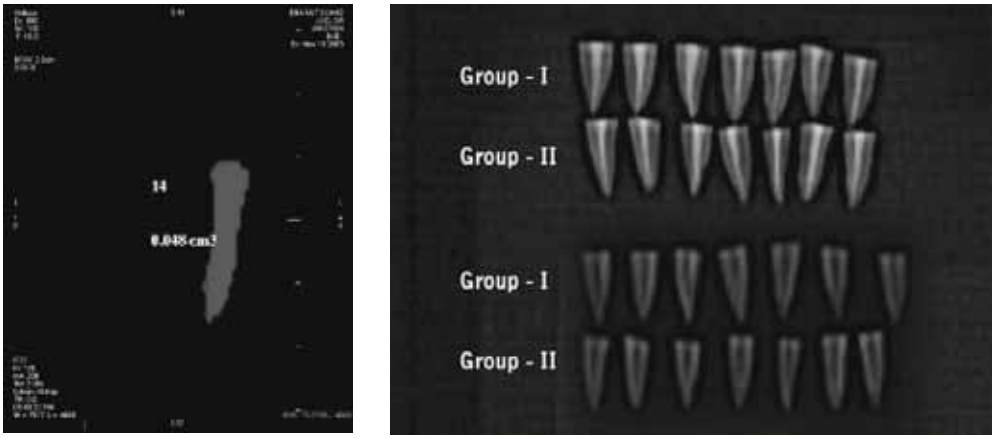
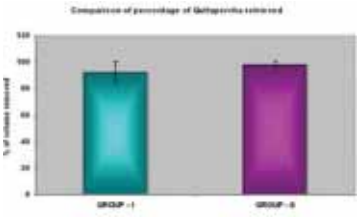


Fig. 3 Volumetric analysis using Spiral CT



GROUP I

No of specimens	Volume of filled material cm^3 (a)	Volume of remaining material cm^3 (b)	% of volume removed [(a-b)x100/a]
1	0.044	0.003	93.18
2	0.046	0.000	100
3	0.056	0.010	82.14
4	0.043	0.005	88.37
5	0.031	0.000	100
6	0.045	0.000	100
7	0.054	0.009	83.33

GROUP II

No of specimens	Volume of filled material cm^3 (a)	Volume of remaining material cm^3 (b)	% of volume removed [(a-b)x100/a]
1	0.047	0.000	100
2	0.044	0.000	100
3	0.049	0.002	95.91
4	0.043	0.003	93.02
5	0.041	0.001	97.5
6	0.059	0.000	100
7	0.048	0.000	100

instructions up to size F3 (30 size, 9% taper). The irrigation protocol was carried out as in group 1. Canals were filled with single cone obturation technique using GP & AH sealer corresponding to size F3.

The access cavities were sealed with Cavit and all teeth were stored at 37°C in a humidor for 30 days to allow complete setting of the sealer. Then the teeth were mounted in a plastic stand using modeling wax for the purpose of taking spiral CT. After CT imaging, volume of the filled material in each tooth were estimated using Siemens Emotion Duo model of Spiral CT with aid of Syngo Software[5].

Endodontic retreatment

Root fillings were removed with ProTaper Universal retreatment instruments following the manufacturers' instructions. In brief, D1, D2 and D3 were sequentially used in a crown-down manner to reach the pre established WL; they were manipulated in a brushing action[2]. The rotational speed was set at 500 rpm as recommended.

A second spiral was done and the volume of remaining material in each tooth was estimated. The removal efficiency was calculated as [(a-b)x100/a], where a was the volume of material packed in the root canal and b was the volume remaining after retrieval[3]. The data was statistically analyzed using SPSS version 10.0.5 software.

Results

The quantitative data were presented as mean ± standard deviation. Analysis of variance (Anova) was adopted to analyze the differences in the percentages of GP/sealer remnants covered area amongst the two groups. Statistical analysis shows there were no significant differences between the groups tested.

Discussion

Complete removal of pre-existing filling material fromcanals is a prerequisite for successful nonsurgical root canal retreatment. the ProTaper Universal rotary instruments left a smaller percentage of area covered

by GP/sealer remnants than those treated with other techniques. The better performance of ProTaper Universal retreatment instruments may be attributable to their design. D1, D2 and D3 have three progressive tapers and lengths. These features may enable the retreatment instruments to cut not only GP but also the superficial layer of dentine during root filling removal. Moreover, the specific flute design and rotary motion of the ProTaper Universal retreatment instruments tend to pull GP into the file flutes and direct it towards the orifice. Furthermore, it is possible that the rotary movements of engine-driven files produce a certain degree of frictional heat which might plasticize GP. The plasticized GP would thus present less resistance and be easier to remove. Prior to the introduction of ProTaper Universal retreatment files, ProTaper rotary finishing files had been used for GP removal. This technique yielded a high-fracture incidence of 22.7%. Procedural errors including instrument fracture were not noted in the present study, demonstrating the safety of ProTaper Universal retreatment instruments in endodontic retreatment. As a general rule, NiTi rotary instruments should be used with great caution. When ProTaper Universal retreatment files are used to remove GP, slight apical pressure has to be exerted for file penetration. Files should be withdrawn frequently for the removal of the debris from instrument flutes before being reintroduced in the root canal system. If the rotary instruments fail to progress along the canal path, stainless steel hand files may be used to check the resistance and establish the glide path.

Conclusion

The protaper universal rotary retreatment system have shown similar performance in removing root filling materials in both lateral condensation and single cone obturation techniques.

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Past Presidents of IDA, Kerala State Branch with office bearers

Finishing in orthodontics

* Abraham Skaria, ** Anil G., ***Ajith R. Pillai, * Shukkoor K.M.

To most of us 'finishing' an orthodontic case implies closing the Extraction space (either completely or partially) by hook or by crook, sometimes by bodily movement of the anterior teeth (ideally) or distal tipping of the canines or due to forward movement of the molars with mesial tipping (due to poor mechanics) or a combination of the above. Sometimes the patient says her marriage is next week and the operator demands the case with a sigh of relief.

However, when presenting an orthodontic case for a Board Examination, the candidate is expected to attain a set of Occlusal, Periodontal and Aesthetic Factors which can be assessed from the Post-treatment study models, Radiographs and photographs of the patient.

I. Occlusal Factors

1. Alignment

The alignment of the teeth anteriorly and posteriorly, both in the Maxillary and Mandibular arches have to be assessed.

a) Mandibular Anteriors: The labio-incisal surface of the incisal edges should all be on the circumference of an arch. This represents the functioning surface of the teeth.

b) In the case of Maxillary Anteriors, the lingual border of the incisal edges should conform to an arch.

c) In the Maxillary posteriors, the mesiodistal central grooves should be in a line.

d) In the Mandibular posteriors, the buccal cusps should be well aligned. Again, these represent the Functioning surface of these teeth.

2. Marginal Ridges

These should be at the same level which implies that the cusps will be at the same level and thus also the fossae. It is actually an indication of the vertical bone height.

3. Labiolingual Inclination

The buccal and lingual cusps of the molars and premolars should be approximately of the same level thus presenting a flat occlusal table for each tooth. This ensures better intercuspation of the posterior teeth.

4. Anterior Inclination

This can be evaluated from a lateral cephalogram and should conform to accepted norms (of a Cephalometric Analysis).

5. Overbite

This equals the length of the cusps of the posteriors and hence has to be individualized for the patient. If the overbite is not deep enough, then the patient would contact only the posterior teeth in protrusive jaw movements making it impossible to incise food.

6. Overjet

Overjet of 0mm is recommended, but may have to be increased if the anterior restorations with bridges or crowns are planned.

7. Occlusal Contact

The buccal cusps of the Mandibular premolars and the molars should occlude against the fossae and marginal ridge of the upper teeth. Similarly the lingual cusps of the maxillary premolars and molars should occlude with the fossae and marginal ridge of the fossae and marginal ridge of the mandibular teeth. Exception may be small distolingual cusps of molars.

II. Periodical Factors

Two points have to be considered

1. Root Agnulation
2. Bone Height.

Both these criteria have to be assessed from good quality radiographs.

Parallelism of the roots is necessary for stability of the results and allows sufficient bone between the teeth making the perodontium less susceptible to disease.

Bone height should be sufficient and at the same horizontal level for all teeth to prevent pocket formation and periodontal illness later on.

III. Aesthetic Factors

1. Crown Width

Sometimes lateral incisors may be malformed or even absent. In the latter case the decision has to be taken whether to substitute the canines or create space for a bridge or implant. Malformed laterals have to be restored suitably and should look identical bilaterally.

2. Gingival Height

Normally the gingival margins of the maxillary central incisors and cuspids are at the same apical level while that of the laterals are more coronally placed.

3. Gingival Embrasures

Triangular black spaces between anteriors are unsightly and can be corrected to a large extent by appropriate mechanics.

Embrasures devoid of the gingival papilla may also develop if the teeth are triangle shaped in which case the teeth have to be reshaped adequately.

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Case report

Restoring aesthetics with an immediate complete denture

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Abstract

Comparison of the outcome of a treatment procedure depends on the clinical situation. Immediate dentures certainly has advantages as opposed to conventional complete denture. From the patient's point of view, the preservation of the natural appearance of a person adds lot to their self confidence. This paper presents a case report regarding the fabrication of immediate denture for a middle aged lady who was resistant to remove her anterior teeth fearing the delay in replacement.

Introduction

An immediate denture is a complete or removable partial denture constructed for insertion immediately following the removal of the natural teeth[1]. Many patients prefer to manage with their unhealthy anterior teeth due to the apprehension in socializing until a proper replacement is possible, which may take at least six to eight weeks of healing. In immediate denture treatment, patient regain adequate function of speech, deglutition and mastication much sooner compared to conventional complete denture. They can have a social and familial life without embarrassment, from the day their own teeth are removed. Moreover the denture acts as a bandage or splint to control bleeding and protect against trauma from the food and promote rapid healing[2].

Case report

A 55-year-old woman with mobile maxillary anterior teeth attended the Department of Prosthodontics, for the replacement of her teeth. She had a well healed complete edentulous mandibular arch and a class I Kennedy maxillary arch with teeth from right canine to left lateral incisor. (Fig. 1 & 2).Her remaining teeth were unsalvageable with deep periodontal pockets and were advised extraction. She had undergone extraction of the remaining teeth 2 years back for periodontal disease.Her medical history was irrelevant and could undergo multiple extractions. But she frankly refused to be edentulous for any length of time.So after clinical and radiological examinations an immediate complete denture for upper arch and a conventional complete denture for lower arch were planned.

Procedure

Maxillary impression was made with irreversible hydrocolloid impression material and mandibular impression with impression compound. Stone casts were prepared.

Custom impression tray was fabricated on the upper stone cast, to record the edentulous portions. It was border molded, palatal seal was recorded with green stick compound and secondary impression of edentulous portion was made with zinc oxide eugenol. The impression tray was taken out, excess material trimmed, handle removed and reinserted in mouth after coating it with alginate adhesive. A pick up irreversible hydrocolloid impression was taken with stock tray. Conventional method of impression with zinc oxide eugenol followed for lower arch. Stone casts were fabricated

Auto polymerizing acrylic resin bases were fabricated and occlusal rim made with base plate wax. Tentative jaw relation was taken. A facebow transfer was made to orient the maxillary cast on the Hanau articulator. Centric relation record was made with impression plaster to articulate the lower cast and protrusive interocclusal records were taken to set the condylar guidance of the articulator

The proper shade, size and shape of teeth were selected after discussing with the patient. Bilateral balancing occlusion was given, posteriorly with no anterior contact in centric relation. Posterior try-in was completed and evaluated in the patients mouth to confirm maxillo-mandibular relation records. (Fig 3) Since maxillary anterior teeth were not extracted, anterior try in couldn't be done.

After marking all landmarks like midline, anterior plane of occlusion, high lip line in the cast, trimming was done. Every alternative tooth were removed and trimming followed Jerbi's technique[4]. The immediate complete denture was processed and finished in the conventional manner with sufficient thickness in anterior region, for future trimming.

PRE-OPERATIVE VIEW

Fig. 1 – Extra oral view

Fig. 2 Intraoral view

Fig 3. Posterior try–in

Fig 4. After extraction

Fig 5. Immediate post operative views

Final prostheses

At the stage of wax boiling out an irreversible hydrocolloid impression of the trimmed edentulous maxillary definitive stone cast was made, and the impression was poured in dental stone. A clear acrylic resin surgical template was fabricated on the duplicated maxillary stone cast by waxing, flasking, and heat processing.

The surgical template was sent to the Oral surgeon during extraction of remaining teeth and was used as a guide for surgical shaping of the alveolar process. (Figure 4)

Soon after the surgical procedure the prostheses was inserted, tested for areas of excessive pressure with pressure indicating paste and adjusted. Occlusion was checked for prematurities and were corrected.

Post operative care and maintenance -The patient was given postoperative home care instructions, of not removing the denture for 24hrs and the use of analgesics and ice packs. She was advised soft diet and not to use mouth wash or to expectorate. On the next day she was recalled and the denture was removed to check for sore spots and were relieved. Patient was trained to remove dentures for cleaning after food. Reinsertion was advised soon after removal because of the difficulty in later insertion owing to tissue swelling. She was instructed to wear denture during night time also for the first post operative week. After one week sutures were removed and patient was allowed to remove denture at night. After one month it was lined with a resilient liner, which was repeated every month.

The patient was satisfied with both the retention and the esthetics of the complete denture (Figure 5) She was also instructed that immediate denture is considered an interim prosthesis and should be relined after 6 months and possibly remade after 12 months.

Discussion

Immediate denture provide aesthetics, function and psychological comfort to the patient who have lost the teeth, during the healing phase[5]. For many patients it facilitates the transition to edentulous state. Although there are limitations to an immediate denture, the final outcome is usually positive. The patients are spared the inconvenience and distress of being seen in public without teeth and there is no interruption in normal life style of socializing..

But due to inability to review anterior tooth arrangement and esthetics before processing and inserting the dentures aesthetic result was highly unpredictable. The probability of an unsatisfactory look, from the patients aspect should not be ignored and should be explained before the selection of this treatment plan. This patient was well motivated with a positive attitude which contributed a lot to the favorable prognosis.

The patients insisting on immediate dentures should be well motivated and counseled regarding the procedures. It always take much more and prolonged

appointments than a conventional denture which increases the over all cost. Above all this is only an interim prostheses which have to be relined with in 6 months and remade with in one year[5]. Patient should be warned about the possibility of loss of retention due to accelerated resorbtion with in few weeks.

Careful evaluation of the vertical dimension of occlusion, centric relation and the placement of the teeth are essential factors for the success of the treatment[6]. A bilateral balanced occlusion is compulsory because, it is the time of bone remodeling and an unfavorable bone response with accelerated resorption may result.

Above all it is the patients mental attitude that decides the final outcome of the treatment. The philosophical type patients are best for immediate dentures. They think positive, admit limitations, eliminate frustrations and learn to adjust rapidly with immediate dentures.

Conclusion

Immediate dentures are one option for the patient facing the edentulous state. An immediate denture provides restoration of esthetics, phonetics and masticatory function facilitating the transition to the edentulous state. It allow patients to continue their social and business activities without being in edentulous state. Relining the immediate completing denture with soft resilient silicone materials can improve the fit and reduce the period of the adaptation with the new denture. Above all proper follow-up care and meticulous oral hygiene is essential for its success.

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Implant supported fixed partial denture

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Introduction

A fixed partial denture can be defined as any dental prosthesis that is luted, screwed, or mechanically attached or otherwise securely retained to natural teeth, tooth roots, and or dental implant abutments that furnish the primary support for the dental prosthesis.

GPT – 7 describes a hybrid prosthesis as "slang for a non-specific term applied to any prosthesis that does not follow conventional design." John B. Nase[1] suggested a method of nomenclature in Implant prosthodontics, whereby prostheses are named according to the SRCP system or the Support-Retention-Connection-Prosthesis system. The retention may be by 4 types, namely, screw-retained, cement-retained, friction-retained and abutment-retained prostheses. The connection may of two types: implant-level or abutment-level. For abutment-level prosthesis two connection subtypes are possible, prefabricated abutments or custom abutments. The final prosthesis used in this situation was a screw retained-implant level-custom cast metal-resin prosthesis.

In studies, with edentulous maxillae, after second-stage surgery, they were provided with either fixed prostheses, removable overdentures followed by fixed prostheses,[2] after at least 1 year, or overdentures for the whole period. Patients were followed up for 5 years, with implant and prosthesis survival, annual visits, marginal bone loss, and complications recorded.[3] Results of the study indicated that treatment outcome in edentulous maxillae might be predicted by careful presurgical evaluation of jaw shape. Five-year cumulative implant failure rates varied from 7.9% for patients considered to have enough bone to be provided with fixed prostheses immediately after second-stage surgery to 28.8% for those with severely resorbed jaws receiving an overdenture.[4]

Case Report

A 61 year old male patient reported to our department wanting to replace his current dentures with a fixed option. His complaints with his current maxillary denture included difficulty in speech and the inconvenience of removing it daily. Clinical examination revealed a completely edentulous maxillary arch opposed by a partially edentulous mandibular arch treated with a conventional tooth supported overdenture. Radiographic examination revealed adequate bone support in the anterior region of the maxillary arch. Diagnostic casts were made and mounted on an articulator. Interarch space was evaluated and determined to be adequate to accommodate the superstructure required to anchor a hybrid prosthesis to the implants.[5] The occlusion and wear patterns of the current denture were also evaluated.

Surgery:

Esthetically significant advantages were seen for the implants placed into immediate function. Implants that are loaded immediately can achieve good outcomes. However, the risk of implant loss appears to be increased in cases where immediate function is combined with immediate implant placement.[6]

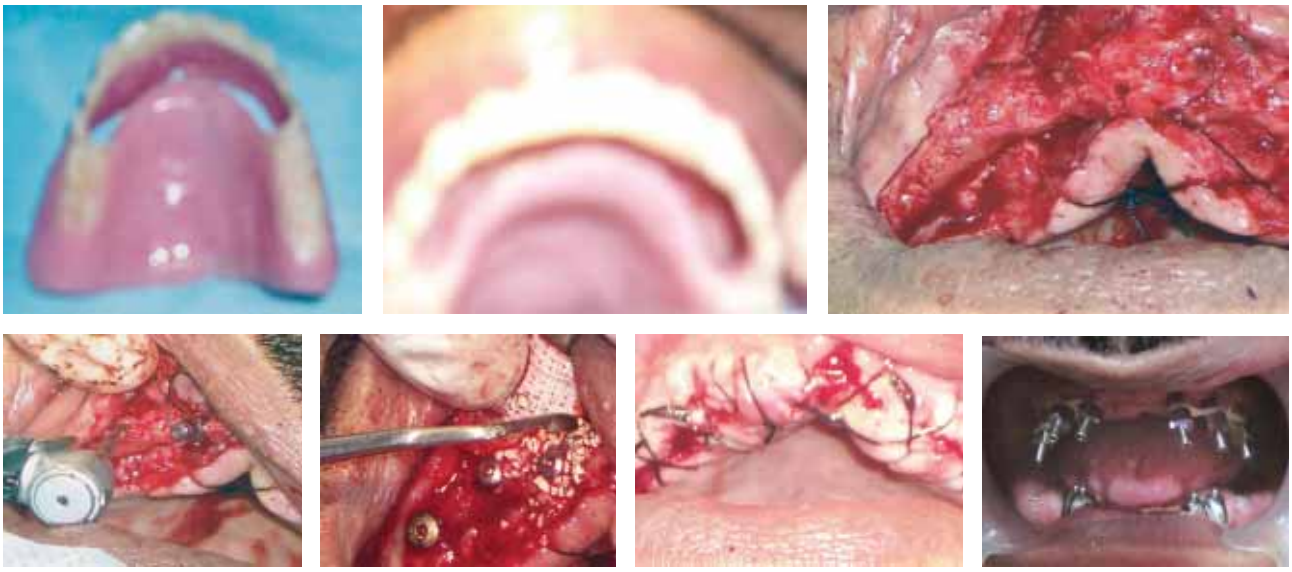
A two stage surgical technique with delayed loading of the implants was used. A surgical guide was prepared by duplicating the existing denture and creating a window in the region of the proposed implant placement.

A single flap was raised from the premolar region on one side to the other side. A pilot drill was placed to a depth of 13mm in the central incisor regions on either side of the midline and then subsequently expanded to a 3.5mm width and two Replace Select Tapered Narrow Platform(Nobel Biocare)implants were placed. Two more Replace Select Tapered Regular Platform, 4.3mm, implants of 13mm length were placed in the canine region on either side and two of 10mm length in the premolar region on either side. A total of six implants[7] were placed in the maxilla. Cover screws were placed. Bone graft mixed with hydroxyapatite was placed in the premolar region on the left side where there was defecint bone and covered with a bioresorbable membrane. The flap was then sutured back in position.

After a healing period of four months, the patient was recalled, the cover screws exposed and replaced with healing abutments.[8] The healing abutments were left in place for a week allowing a gingival collar to form around the implant abutment junction.

Impression

A custom tray was prepared and an open tray-impression technique was used for making the impression. The healing abutments were removed and an open tray prosthetic extension was screw retained to the implant. Three implants on either side were stabilized



with pattern resin. The accuracy of impression techniques for osseointegrated implants (with or without acrylic resin splinting and with irreversible hydrocolloid or polyvinyl siloxane showed that splinted impression copings generated more accurate casts, irrespective of the impression material.[8] A combination of light body polyvinyl siloxane and putty consistency were used to make the impression. The screws holding the prosthetic coping were removed and the impression then removed from the mouth. A putty impression was made of the opposing mandibular overdenture also at this time. Implant analogues were attached to the end of the prosthetic copings and a cast was poured using die stone.

Prosthetic Rehabilitation

Castable UCLA abutments with cast rectifiers to reduce the discrepancy in marginal fit[9] were used to create the prosthetic attachments which were incorporated in a cast metal framework. The cast framework was tried in the mouth to ensure passive fit[10] to the implants and underlying tissue. The clinical and laboratory procedures[11] employed for framework fabrication are inadequate to provide an absolute passive fit for implant-supported fixed superstructures. Although some prosthetic complications are attributed to the lack of passive fit, its effect on implant success is questionable.[12,13] Nevertheless, the clinical results of increasing applications of advanced technology to improve framework fit seem promising. An occlusal rim was fabricated and jaw relations recorded. The casts were now mounted on a semi-adjustable articulator using a face-bow transfer and teeth arrangement was done. The teeth arrangement was tried in the mouth and jaw relations were confirmed. At this stage the fit of the framework to the implants were again assessed. Group function occlusal scheme was used in the occlusion for the denture. High impact heat cured acrylic resin was used to fabricate the acrylic part of the hybrid denture.

Conclusion

It is important to understand the influence of the attachment mechanism on many clinical aspects of implant dentistry. Several factors are essential to the long-term success of any screw retained implant prosthesis. These factors include: (1) ease of fabrication and cost, (2) passivity of the framework, (3) retention, (4) occlusion, (5) esthetics, (6) delivery, and (7) retrievability.[14]

The hybrid prosthesis or the fixed partial denture supported by implants is a popular treatment option for a completely edentulous arch. Completely edentulous patients have the option of a prosthesis which replaces not only the missing teeth, but also part of the supporting structures providing better esthetics and patient satisfaction. The option of an implant retained overdenture is slowly giving way to fixed partial dentures supported by implants.

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Cross sectional study

Musculo skeletal complaints in dental practice among 398 dental professionals in Kerala

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Abstract

A cross sectional study was conducted to investigate the incidence of occurrence of various musculoskeletal complaints like pain in the back, lower back, neck and leg region among 398 dental practitioners in Kerala state. Its nature and frequency, associated complaints like dizziness, tiredness, fatigue of arms and legs, the possibility of postural risk factors affecting them and the nature of treatment they seek were also included in the study.

Methodology: The dental practitioners with different nature of practice were selected and interviewed using a prefabricated questionnaire in person or over telephone.

Observations: Out of the people included in the study 65 % responded to at least one of the musculoskeletal complaints with maximum predilection of lower back pain (85 %) and followed by neck pain (43%) among them. The prevalence of the disorder among General Dental Practitioners, Long Time Practitioners and Full Time Practitioners were found to be equal. The disorder was reported high (14% more) among Lady Dentists in comparison with the male practitioners. It was noted that there was a higher prevalence of musculoskeletal complaints among the age group between 30 and 40. The practitioners with sitting nature of practice were observed to have higher predilection of the disorder (76%).

Discussion & Conclusion: The article reviews the other studies done in this regard earlier and concludes that dentists have higher incidence of occupational musculoskeletal disorders and injury, which could even affect their professional existence. The alarming incidence of this degenerative disease among lady dentists, importance of availing short break and rest in between work to reduce its prevalence and severity and also the necessity to educate about this in dental colleges are evidently emphasized.

Introduction

Lower back pain has been reported to be the most common type of discomfort among all occupational groups[3, 7, 21, 26]. The consequences of this type of musculoskeletal disorder are found to be fatigue, pain or discomfort, illness or injury, missed days at work, errors and lower productivity resulting in operator or patient dissatisfaction. The physical signs and symptoms of this disorder are commonly decreased range of motion, deformity, decreased grip strength and loss of muscle function of the limbs.[22, 23, 27, 31] Though this disorder is found to be often self-limiting, it should not be ignored since its causes may vary from mere postural deficits to more severe conditions like infections, fractures and even tumors. Moreover it is understood that stretched nerves cannot communicate properly with the core muscles, glands or even the organs of the body.

Understanding musculoskeletal disorders & ergonomics[30]*: Musculoskeletal Disorders* has been defined by W.H.O as "disorders of the muscles, tendons, peripheral nerves or vascular system not directly resulting from an acute trauma or instantaneous event". Two most common causes for musculoskeletal disorders in the dental health profession are *cumulative traumas & prolonged static postures.*

Ergonomics is the "study of workers and their relationship with their occupational environment". Physically challenging nature of work in dentistry combined with the risk factors such as prolonged static postures, repetitive movements, working in a confined space, challenges in positioning the practitioner or the patient and the limitations with the tools and equipments used results in poor ergonomics. These factors can initiate, progress or worsen the musculoskeletal disorders.

The present study is an attempt to understand the incidence and prevalance of musculoskeletal disorders among the practitioners in Kerala state, categorize them according to its type and severity, understand the risk factor involved and to evaluate the type of follow up they give to this problem.

Background of the study: Scientific research works by David W. Rising et al[10], K. M. S. Ayers et al[12] and Al Wazzan KA[2] correlating ergonomics in dental procedures suggested that dental professional, whether they are dentists, dental hygienists or assistants, experienced more neck, shoulder and back pain than practitioners in other

occupational groups. It was suggested that the constant replication of certain movements, such as the many movements that a dentist will perform whilst treating patients in general practice, could contribute to chronic body pain.

Furthermore, exclusive study reports on ergonomics[30,25] among dental health professionals investigating the causes for early retirement listed out the following reasons. Health related complaints were the commonest, and among them Musculoskeletal Disorders (29.5%) was the major reason followed by Cardiovascular Disease (21.2%), Neurotic Symptoms (16.5%), Tumors (7.6%), & the diseases of the Nervous System (6.1%).

Aim & objectives of the study

Aim: To understand the relationship of dental clinical practice and musculoskeletal disorders.

Objectives:

1. To evaluate the incidence of various forms of musculoskeletal disorders among practicing dentists.
2. To check for its age and sex predilection.
3. To assess the relation between practitioner's posture and nature of practice to this disorder.
4. To estimate the frequency, severity and nature of this discomfort among the study group
5. To estimate the prevalence of associated symptoms of this disorder
6. To assess the awareness of the early treatment necessity of this disorder among dentists

Methodology

A simple and easy to respond questionnaire pertaining to the objectives of the study was prepared in the department of Community and Preventive Dentistry, Royal Dental College; Palakkad; Kerala, and a sample response was tried among randomly selected staff members of the college.

Details of dentists and their phone numbers practicing in different parts of Kerala especially at Palakkad, Malappuram, Thrissur and Kozhikode districts were collected from their respective IDA branches. 500 practitioners were selected from the list involving almost all types of practitioners like General Dental Practitioners with own establishments, employed Assistant Dentists, Specialist Consultants in various disciplines, College Teachers and Hospital attached Practitioners, to minimize the errors in the sample selection criteria.

The dentists in and around the college area were directly approached and others were interviewed with the questionnaire matters over the telephone after fixing prior appointments. Out of the selected 500 dentists 398 people responded thoroughly to the questionnaire. Thus 398 cases were processed and analyzed for various observations.

Observations

A descriptive explanation of the type of practitioners under study, their gender and age characters and the prevalence of any one or more of musculoskeletal complaints among them are separately explained in the diagram Fig: 1

The incidence of the disorder among the affected people in relation with their working nature is expressed in Fig 2.

Age predilection among the people suffering from the disorder in the present study is tabulated as in Fig: 3

Out of 258 responded people, 45% had multiple musculoskeletal complaints. The symptoms of the disorder were tabulated separately as percentage and the result is as shown in Fig: 4.

The nature, frequency and duration at the time of this discomfort and its relationship with rest are assessed in Fig: 5.

The percentage of people on medication for these discomforts and the percentage of people who have sought any kind of treatment for this degenerative disease are tabulated in Fig.6.

Discussion on the present study observations

The incidence of musculoskeletal disorders was separately assessed among the various groups under study as expressed in Fig: 1. Out of 398 dental professionals 258 (65%) responded positively to one or more type of musculoskeletal disorders.

Females compared to male practitioners had a higher prevalence of this disorder. Maximum incidence was found among the Female practitioners with less than forty years of age (78%) and minimum among males who crossed forty years of age (55%). Practitioners of varying nature like General Practitioners, Specialist consultants, Full time and long working Time Practitioners did not show any significant difference in its occurrence.

The commonest known factors for musculoskeletal disorder among dentists are thought to be long working time in restricted positions and the nature of working posture. A comparison of the incidence of this disorder with various working postures is expressed in Fig: 2. It is generally thought that posture is a serious risk factor in developing this disorder, and as observed here, among the affected people with full time practice of more than 4 hours per day (255), the practitioners with sitting nature of practice had a higher incidence of this disorder (76%).

Among the sample under present study, the age group between 30 to 40 yrs had a higher predilection of this disorder as shown in Fig. 3. However it requires further extensive investigation with larger sample size and precise exclusion criteria of sample selection to validate this finding.

Fig: 1:

TYPE OF PRACTITIONERS *			G.P	M.P	E.C	L T P	F T P	P T P	TOTAL	
Total no: of People Under study	**M**	**40+**	64	28	4	95	92	4	96	**312**
		40 -	146	69	1	132	215	1	216	
	F	**40+**	15	2	1	18	15	3	18	**86**
		40 -	63	2	3	23	67	1	68	
	TOTAL		**288**	**101**	**9**	**268**	**389**	**9**		**398**
No: of people with complaints (Out of 398)	**M**	**40+**	40	13	0	52	53	0	53 (55%)	**193 (62%)**
		40 -	95	45	0	98	140	0 (65%)		140
	F	**40+**	9	2	1	10	10	2	12 (67%)	**65 (76%)**
		40 -	50	1	2	18	52	1	53 (78%)	
TOTAL			**194**	**61**	**3**	**178**	**255**	**3**		**258 (65%)**
Percentage of PPL with Complaints			**67%**	**60%**	**33%**	**66%**	**66%**	**33%**	**65%**	

* M-males, F- females, 40 (+ & -) years, G.P.- general practitioners with own establishments, M.P – multiple practice (G.P with visiting consultation), E.C-exclusive consultants, L.T P-long term practice (>10 yrs), FT.P- full time practitioners (> 4 hrs), PT.P – part time practitioners

Fig: 2.

Total people affected	*working nature of people under study*	*number of affected people*	*incidence of disorder(%)*	*max / min incidence*
258 / 398	193 sitting	sitting = 147	76 %	maximum
	85 standing	standing = 33	39%	minimum
	120 combination	combination = 75	63%	

Fig: 3.

AGE RANGE (in yrs)	25 - 30	31 - 35	36 - 40	41 – 45	46 - 50	51 & ABOVE
% OF EXPRESSION	18%	30%	32%	6%	5%	9%

Fig: 4

Nature of complaint	back pain	neck pain	leg pain	dizziness	fatigue of limbs	tiredness during work
% Of people affected	85%	43%	2%	1%	4%	4%

Fig: 5

Type of discomfort	frequency of occurance		duration		type of pain		relationship with rest	
Nature of discomfort	occassional	frequent	last less than a day	last more than a day	sharp lancinating	dull aching	releives	worsens
Sufferers(%)	60%	22%	59%	25%	16%	63%	83%	0.4%

Fig. 6

Character distribution based on treatment	Long term sufferers (> 5 yrs)	People on self medication	People who sought medical consultation	People never underwent consultation
% of people	23%	24%	21%	78%

Out of the responded people, the various definite Musculoskeletal complaints like general back pain, neck pain, leg pain and also the associated symptoms like dizziness, fatigue of limbs, tiredness even during light work were tabulated separately and the result is as shown in Fig: 4. Among the complaints, 85% was exclusively back pain or its combination with other associated symptoms. Most of the past studies on dentistry related Ergonomics were centered on back pain and at times back pain was used as a synonym for this group of discomforts. This observation is an attempt to analyze various types of musculoskeletal complaints according to its expression.

Pain is an unpleasant expression of a discomfort and its expression is dependant upon individual's threshold to withstand it. Recording mere presence or absence of pain will not explain the true character of this disease. The nature, frequency and duration at each time of this discomfort and its relationship with rest are assessed in Fig: 5. 60% of the sufferers had only occasional pain compared to 22% reporting frequent pain. For 59% the pain last for less than a day and 25% suffered more than a day each time. For 63% the pain was dull aching and 16% the pain was sharp lancinating. For 83% the pain was relieved on rest and for 0.4% of sufferers it was worsened.

It was a keen matter of interest to know how many of the sufferers were serious about this degenerative disease and actually sought any treatment for this. The percentage of people on medication and the people who have sought any kind of treatment for this degenerative disease is tabulated in Fig.6.

Out of the total sufferers, 23% of people were having this complaint for more than 5 years, of which 78% had never sought even a medical consultation for this problem. Among them 24% of people were on self-medication also.

Review of literature:

Occupational risk of musculoskeletal disorder: Lower back pain has been reported to be the most common type of discomfort among any occupational groups[3, 9, 11, 28, 30] Studies on ergonomics related to dentistry shows that dentists and dental assistants experience more musculoskeletal disorders like neck, shoulder and back pain when compared to the practitioners in several other similar risk bearing occupational groups.[2, 7, 20]

A study by David W. Rising et al[10] published in 2005, reported the higher prevalence of musculoskeletal body pain among dental students. In this article they also described how dentists experience lower back pain than the practitioners in other occupational groups.

Gender difference in the prevalence of the disorder: Unruh[28], in a review article stated that women are more prone in developing variety of chronic musculoskeletal pain than men. Rundcrantz et al[23] conducted a similar prospective study in 1987 among 311 dentists and another study among different populations in 1990. In both the studies female dentists had higher prevalence of pain and discomfort in the neck and shoulder as compared to their male colleagues.

Postural risk among dentists: Ratzon NZ et al[22] conducted a study to determine the effect of work posture on musculoskeletal complaints. Their observations were supported by several similar studies concluding that those working in sitting position alone had more severe low back pain than those who alternated between sitting and standing positions.

Conclusion

Several epidemiological studies have recognized dental professionals, irrespective of their professional nature as practitioners, hygienists or assistants, generally suffer from musculoskeletal disorders affecting cervical spine area and its musculature. [2, 14, 20]

In this present study, 65% of the practitioners reported to have one or more type of musculoskeletal disorders. Their varying nature of practice, gender, age and even the type of disorder were considered separately in an attempt to understand the underlying factors of the disease that may point towards its management. Most of the previous studies done in this regard, have generalized these professionals into dentists rather than considering their nature of practice or the method of delivering it.

The references[5, 13, 26] used in the present study emphasize the importance of availing short break and rest in between work that will allow the practitioner to mobilize their bodies and relieve them from the stress of work. They are especially important for dentists as they can be in almost the same position throughout their work.

The exclusive study reports have stated the higher incidence in the occurrence of musculoskeletal disorders among lady practitioners compared to men and also female dental students compared to males in dental colleges.[10, 28] The surprisingly increasing women student population in dental colleges of India[26] and the drastic

change in the male, female dental student ratio, calls for a serious attention to this observation.

Considering the present study and the available review of literature in this regard, it can be concluded that musculoskeletal disorder is certainly prevalent among dental practitioners. Seating positions and postures especially in long sessions of treatment play a vital role in healthy and fit clinical practice. Increasing epidemiological reports on the prevalence of musculoskeletal disorders among the dental practitioners, calls for the importance of including teaching of right seating positions for the operator during work, in early dental career itself.

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Central Govt. nominates Dr.Joseph Isaac to Dental Council of India

Central Govt. has nominated Dr.Joseph Isaac to the Dental Council of India as its representative in the Council. Dr. Isaac is the Director and Professor at Pushpagiri College of Dental Sciences, Tiruvalla. He is the former National President of the Indian Orthodontic Sociey. He has been an active member of the Indian Dental Association for the last three decades.He is a native of Cochin. This is the first time in the history, the Central Govt. has nominated a dental professional from the state of Kerala.

Odontogenic keratoacyst of anterior maxilla with mesiodens

* Rathy Ravindran, ** Shirley Varkey, *** Priya S.

Abstract

Odontogenic Keratocyst comprise 11% of all jaw cysts. Maxillary Odontogenic Keratocyst are uncommon. The aim of this article is to report a rare case of coexistence of Odontogenic Keratocyst and mesiodens. Only a case of Odontogenic Keratocyst and supernumerary teeth in Ehlers Danlos syndrome patient has been reported in the literature. Cases of dentigerous cyst with mesiodens reported than okc with mesiodens. 5% of dentigerous cyst reported to be associated with supernumerary teeth. Histopathologic examination is mandatory for diagnosis. Because of the high recurrence rate of okc method of treatment adopted was enucleation, aggressive curettage with adjunct carnoy's solution.

Introduction

Odontogenic Keratocyst as defined by WHO are known for their peculiar behavior, varied origin debated development. Unique tendency to recur, and disputed treatment modalities. The term Odontogenic keratocyst was introduced by philipsen in 1956. It has been subject of extensive research over last 45 years regarding its origin, growth, mitotic activity, histopathologic feature, clinicopathology and recurrence [1]

Although odontogenic Keratocysts are benign they are often locally destructive and tend to recur after conservative surgical treatment. Histopathological examination is essential for diagnosis since appearance on roentgenogram and at operation usually do not reveal the true nature of the lesion. Histopathologic examination is mandatory, and clinical assessment and roentgenogram are adjuncts to diagnosis.

Odontogenic Keratcyst are uncommon odontogenic cysts of the jaw and comprise 11 % of all jaw cyst[2] Approximately two third odontogenic Keratocyst involve mandible and one third involve maxilla[3]. Although there is considerable predilection for mandibular third molar ramus area they may also occur in maxilla. Anterior maxilla is not a common site. The present case involved anterior maxilla and extended to involve the root of palatally erupted mesiodens. Impacted supernumerary tooth (mesiodens) unassociated with the pathology was also seen is relation to 21.

Case report

A male patient aged 30 years reported to the private dental Clinic with chief complaint of swelling in maxillary anterior region, slight paresthesia of 11 and occasional discharge.

Extra oral examination revealed slight diffuse swelling below and right to alae of nose. Intraoral examination revealed diffuse nontender swelling extending from 21 region to 13 region 2.5 x 1.5 cm. Erupted Mesiodens seen in the midline palatal to the maxillary central incisors. IOPA and occlusal radiograph revealed scalloped radiolucency. Palatally erupted mesiodens seen in close association with the radiolucency.. Radiolucency was superior to 11 12 13. Impacted supernumerary tooth (mesiodens) seen unassociated with the radiolucency in relation to 21. Radiolucency (window) within radiolucency seen caused due to perforation of cortical plates. Associated teeth are vital.

After complete investigation, hemogram, ELISA, urine RE patient was taken up for cyst enucleation under LA. Intraoperative findings was that the cyst wall was friable and thin and hence was unable to remove the cyst intact; perforation of labial cortical plate in the region of 11 near the mucolabial sulcus and the glistening cheesy material found on surgical exploration. The cyst extended through medullary bone in anteroposterior direction and bone defect of 2.5 x 3.5 cm extending from anterior cortical perforation to the palate involving root of palatally erupted mesiodens and was adherent to the root. Enucleation, aggressive curettage and adjunctive carnoy's solution was the treatment method adopted. The associated mesiodens was removed with the cyst.

Post operative antibiotics and analgesics were prescribed. Post operative period was uneventful. The patient reviewed after 1 month, 3months and 6months. Radiograph repeated showed uneventful bone healing and was advised follow up every year for 5 year.

Microscopically the lesion showed 6-8 cell thick parakeratinized epithelium with palisading basal cell layer. The epitheluim connective issue interface was flat and seen separated at some areas. The cyst wall collagenous and devoid of inflammatory infiltrate . Diagnosis of Odontogenic Keratocyst made.

Fig 1. Slight diffuse swelling in the mucolabial sulcus extending from 21 region to 13 region.

Fig 2. Occlusal view showing scalloped radiolucency with erupted mesiodens seen in close association with it. Another mesiodens seen unassociated with the radiolucency periapical to 21. Radiolucency (Window) within radiolucency seen.

Discussion

Although OKC is a well recognized entity the current views on its origin vary. Some consider it as arising from dental lamina or its remnants. Others consider it as primordial cyst arising in place of normal or supernumerary teeth. Another theory advocates its origin from extension of basal cells from overlying oral epithelium[4]. The present case involved another maxilla with erupted and impacted mesiodens. It is suggested that likely origin for OKC in this location is primordium of a mesiodens that fail to erupt[5].

The incidence of supernumerary teeth in permanent dentition is 1.5 % - 3.5 % with male: female ratio of 2.1. Supernumerary teeth may causes failure of eruption, displacement of permanent teeth, crowding and associated pathologies. Resorption of roots of adjacent teeth exceeding rare. Removal of supernumerary teeth associated with pathology recommended. The etiology of supernumerary teeth is unknown. One school of thought is of the view that they develop from a third tooth bud arising from dental lamina near the permanent tooth bud or from splitting of permanent bud itself.[6]

The most common supernumerary tooth is mesiodens commonly situated between maxillary central incisors. Mesiodens may be single or multiple,erupted or impacted &rarely seen with dentigerous cyst. In the present case OKC extended to envelope root of erupted mesiodens.Mesiodens are cone shaped & have short root as seen in our patient. Most mesiodens are palatal to permanent incisors as in the present case.

A rare case of coexistence of OKC with supernumerary teeth in Ehlers Danlos syndrome was reported in the literature (Ferreira OJr et al)[7]. No other such reported cases in the literature. Hence the purpose of reporting the present case.

OKC generally seen more frequently in males than females[1]. They generally grow in anteroposterior direction without causing much expansion of cortical plates for long period of time. Maxillary cysts tend to become infected and hence diagnosed at earlier stage of development[1].

The most common maxillary location for OKC is the canine region where they are commonly mistaken for an apical inflammatory or lateral periodontal cyst[8]. Ali and Baughma studies of maxillary OKC showed that of all maxillary OKC predominant site was canine region. The present case involved anterior maxilla incisor region not crossing midline.

OKC appear as well defined radiolucencies which can be either unilocular or multilocular . Unilocular OKC can be located periapically simulating periapical cysts, surrounding the crown of unerupted teeth simulating dentigerous cyst, between the roots of teeth simulating lateral periodontal cyst or lateral radicular cyst, or in maxillary midline simulating nasopalatine duct cyst[8].

Conventional radiographic imaging such as intraoral PA films and panoramic views in most cases are adequate to determine the location and estimate the size of an OKC. Advanced imaging like CT and MRI can be useful in cases involving maxillary sinus and rare cases that extend to skull base[8].

They have higher recurrence rate and hence the treatment tend to be challenging because of thin friable nature of cyst wall complete enucleation is difficult. Recurrence rate ranging from 5% to 62 % reported. This wide variation in recurrence is thought to be due to the different treatment approach ranging from simple enucleation and curettage to resection of affected jaw[9].

Voorsmit et al compared two treatment modalities

Fig. 3 Friable cyst wall which was removed as bits.

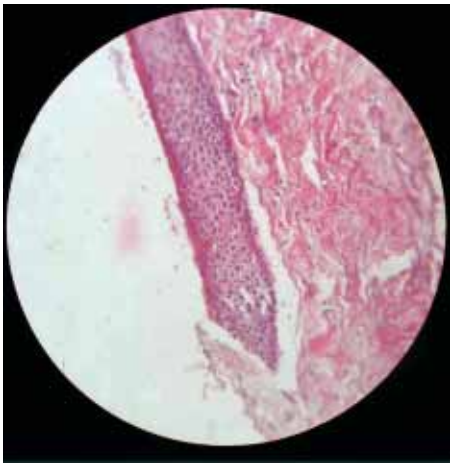

Fig. 4 Photomicrograph shows the characteristic corrugated parakeratinized lining epithelium and collagenous cyst wall. The epithelium connective tissue interface is flat and separated at some areas.

– 52 OKC treated with enucleation alone and 40 OKC removed along with excision of overlying mucosa and treatment of cyst cavity with carnoy's solution . In the first group 13.5 %. Recur ed whereas 2.5 % in the second group recurred[10]

In Voorsmit's series of cases, the use of carnoy's solution and soft tissue excision gave a very low incidence of relapse. The goal of using carnoy's solution and cryosurgery was to kill epithelial remnants and dental lamina in the osseous margin.

Kerim et al carried out enucleation, aggressive curettage and carnoy's solution and suggested use of carnoy's solution as adjunctive for lower recurence rate by preventing the possible epithelial and dental lamina remnants which may cause recurrence [10].

An approach that recently gained popularity is combination of methods:

First step is to decompress the cyst-a plastic drain is secured in place to ensure that opening remains patent.After 6-8 weeks lining becomes thick & tough .Second step is to enucleate .Third step is to perform peripheral ostectomy with large bone bur.A margin of 2-3mm is taken depending on adjacent vital structures involved.Final step is to treat residual bone bed with chemical cautery(carnoy's solution).

Considering the higher recurrence rate associated with OKC, treatment modality adopted was cyst enucleation, aggressive curettage with adjunct carnoy's solution. The patient was advised follow up every year for a period of 5 year.

Conclusion

In the present case definitive diagnosis was made on histopathological examination. Here the cyst appeared to arise independently & extended to involve root of erupted mesiodens & is coexistence .The coexistence of OKC with mesiodens rarely reported. Clinical & roentgenograms are only adjuncts to diagnosis & for definitive diagnosis histopathological examination is mandatory.

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Case report

Ocular prosthesis

* A.V. Sreekumar

Introduction

Eye is one of the most vital organ in the human body not only because it gives us vision but also it forms an important part of facial expression . So loss of an eye can cause psychological Problems to the individual. Eye can be lost due to malignancy, trauma or congenital cause.

Although readymade eye shells are available in the market, it is always better to make a Custom ocular prosthesis which fits exactly in the eye socket.

Case report

The 14 year old female patient reported to the Dept of Prosthodontics at Pariyaram Dental College, Pariyaram with missing right eye .

Figure- 1

Figure - 2

Figure - 1 & 2: missing right eye in the 14 year old female patient.

The history revealed that the right eye was enucleated due to malignancy at the age of 2 years.

Procedure

A readymade eye shell was selected based on the colour and size of the pupil of the patients left eye.

Figure - 3

Figure - 4

A special tray was made with self cure acrylic resin with a hollow handle for injecting of impression material through the handle (Figure - 3).

Special tray was tried and extensions were adjusted (Figure - 4)

Figure - 5 Figure - 6 Figure - 7

An impression of the defect cavity was made using the light body silicon impression material followed by pouring the cast with dental stone (Figure - 5, 6 & 7).

The pupil part of eye ball was isolated from the eye shell by trimming.

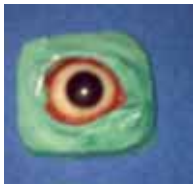

Figure - 8 Figure - 9 Figure - 10

The separated pupil was waxed up with modelling wax on the cast (Figure - 8).

Try in of waxed up prosthesis was done to check the position of the pupil and prosthesis extension in the patient's ocular defect (Figure - 9).

Acrylization of the waxed up prosthesis was done with heat cure resin

Finished and polished prosthesis inserted into patient's ocular cavity (Figure - 10).

Post insertion instructions were given

Follow up done after a week, a month and 6 months interval.

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Delayed reimplantation vs dental implants

* Joseph Edward, ** K. Radhakrishnan Nair, *** Gayathri Krishnan, **** Anjana Raj

Abstract

Avulsions are one of the most complicated displacement injuries of the permanent teeth. We report a five- year follow up of two cases which illustrates varying but poor post-treatment outcomes associated with delayed replantation of avulsed teeth. Based on clinical trials and a brief review of literature, this article discusses factors which influence the occurrence of resorption and suggest a better, safer, effective and long-lasting treatment option.

Introduction

Dental trauma research has shown that the best prognosis for an avulsed tooth is when it is properly treated within the first 15 minutes following exarticulation, or when it is stored in an optimal biological medium (such as Hank's Balanced Salt Solution-HBSS) within the first hour of accident.

However, recent laboratory studies support previous clinical outcomes which state that there is a chance for regeneration of the periodontal ligaments only if the teeth are implanted within 5 minutes of avulsion. These studies also bring to light that in delayed replantation, healing occurs by repair rather than regeneration followed by ankylosis and root resorption which will eventually end up in extraction of the tooth.

CASE 1:

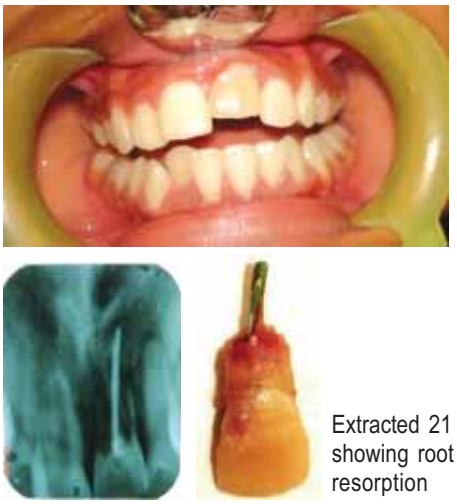
A boy aged 10 years reported to the casualty of Azeezia Medical College more than 30 minutes after trauma from a cricket ball. On examination, there was avulsion of 21 and 22 along with loss of alveolar fragments. Soft tissues were sutured and the avulsed tooth replanted & stabilized with ligature wire. Composite splinting was done which was removed after 6 weeks. A week after replantation root canal treatment was done for 21 and 22.

A five year follow up of this case showed that there was only a minor change in the occlusal level of the replanted teeth clinically. But radiographic examination revealed that there was extensive root resorption from the first year of follow up itself. There was also fusion between the teeth & alveolus (ankylosis), preventing the affected teeth from drifting with growth of the maxilla. Eventhough the patient is satisfied with the clinical appearance, the teeth need to be extracted at a later stage.

Avulsed teeth brought by the patient

Reimplantation procedure

Radiograph showing root resorption after 1 year



Extracted 21 showing root resorption

Clinical photographs of implant cases.

CASE 2:

This case presented is of a 7 year old girl who sustained trauma to her incisors, due to fall from her bicycle. On examination there was avulsion of 21. She was brought to the casualty more than 30 minutes after the accident and the avulsed tooth was brought in a hand kerchief. After replantation into the respective socket and checking for alignment & occlusion, it was splinted to the adjacent teeth with fibre splint and composite (GFRCR- Glass Fibre Reinforced Composite Resin). Root canal treatment was carried out for 21.Patient was placed on antibiotic coverage and oral hygiene instructions were given. On follow up, clinical examination showed that there was infraocclusion of 21. Radiographic examination revealed extensive root resorption of 21.

Discussion

The conventional treatment for an avulsed tooth can be greatly enhanced by implant dentistry. The advent of dental implants and modified dental implants for craniofacial application has allowed improvement in cosmetic and functional restoration. Although you have a number of treatment options for restoration of missing teeth, none have proven to be as functionally effective and durable as implants.

Soft and hard tissue defects of the cranio-maxillofacial area after an avulsion injury are challenging to reconstruct. Sophisticated hard and soft tissue transfer techniques have allowed satisfactory reconstruction of the gross anatomic structure. However these methods do not allow optimal restoration of fine anatomic details or functions.

Today dentists are capable of fabricating subunits of the cranio-maxillofacial area with fine details, reproducing the colour, texture and other minute characteristics of a patient's native skin depending upon the age and growth pattern of the individual. For patients who have achieved growth cessation and for those who are not medically compromised, dental implant technology has allowed prostheses to be bone anchored, yielding reproducible and stable attachments with optimal results.

Conclusion

Implants are virtually indistinguishable from any other teeth. This appearance is aided in part by the structural and functional connection between the dental implant and the living bone. Once the implant has osseointegrated, artificial prosthesis may be attached. This method of attachment in turn allows flexibility in design of the prosthesis to improve the restoration and imparts an increased sense of confidence to the patient.

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Doctor of Philosophy (PhD) in Orthodontics

Dr. Suja Ani

Dr. Suja Ani G, Professor and Head of the Dept: of Orthodontics, Govt: Dental College, Kottayam; wife of Dr. George Skariah P, Dept: of Oral and Maxillofacial Surgery, Govt: Dental College, Kozhikode; has been awarded the degree of Doctor of Philosophy (PhD) in Orthodontics in the Faculty of Dental Medicine by the University of Kerala for her research work 'Soft tissue and skeletal parameters for aesthetically attractive young adults of Kerala polulation'. She is the first person to be awarded PhD in Orthodontics from a University in Kerala. The PhD secured by Dr. Suja had been adjudged by experts as unique as a milestone in researches on Orthodontics.

Skeletal class III - treat or not to treat? -A dilema

* Ajith R. Pillai, ** Abraham Skaria, *** Sumi S., *** Parvathy G.

Abstract

Most orthodontists are familiar with difficulties associated with treatment of Class III malocclusion (maxillary retrusion,mandibular protrusion, or maxillary constriction-prognathic syndrome), particularly when this condition is identified in late deciduous or early mixed dentition period. Petit describes such syndrome- in which underlying skeletal elements may be out of balance in all three planes of space. The treatment of this malocclusion raises the clinical dilemma: Is it better to intervene at an early age(using appliances such as chin cup, reverse extra oral traction, FR-3) or to wait for craniofacial growth to be fully expressed(combination of orthognathic surgery and orthodontic treatment)?. Although the late approach is the treatment of choice in severe cases,the patient still faces psychosocial problems during childhood.

This paper describes a treatment approach that permits a rapid resolution of Class III malocclusions in young patients-a bonded rapid palatal expander and an orthopedic facial mask in combination, produce a more rapid response than when either is used alone)

Introduction

The developing skeletal Class III malocclusion is one of the most challenging problems confronting the practicing orthodontist. Although treatment dates back to the 1800s,' many practitioners continue to avoid early intervention because they believe the condition is caused by overgrowth of the mandible, and they do not believe it possible to control mandibular growth. Therefore, they rationalize that mandibular surgery is inevitable. Such conclusions often result from "corrected" Class III malocclusions that experience latent growth and a return to pretreatment conditions. Compromised results can also be due to poor patient cooperation, since orthopedic appliances for Class III treatment can be uncomfortable and unaesthetic. There are few acceptable alternatives when a patient refuses to wear an extra oral appliance. Another factor may be practitioner's lack of experience in managing Class III malocclusions . Class III cases make up only about 5% of the orthodontic population.

Prior to the 1970s, the orthodontic literature portrayed the Class III problem as one of mandibular prognathism. Several authors omitted discussion of maxillary protraction as a viable treatment method, referring only to the use of chin cups to restrain mandibular growth. Recent studies, however, suggest that the majority of Class III malocclusions have maxillary retrusion as all or at least part of the structural etiology. Guyer et al. and Ellis and McNamara found mandibular protrusion in combination with a normal maxilla in only 19% of the cases studied. In contrast, maxillary retrusion in combination with mandibular protrusion occurred in 34% of Guyer's sample; maxillary retrusion in combination with a normal mandible was found in another 23% of the 13-to-15-year-old group. Overall, maxillary skeletal retrusion was present in 63% of this age group.Using the Ricketts analysis, Sue et al. found that 62% of their Class III cases involved maxillary retrusion. It becomes obvious from these studies that management of most skeletal Class III cases should include maxillary protraction as a major objective.

Diagnosis and Treatment Planning

Cephalometric values can provide important information about the relative contributions of skeletal and dental components to a malocclusion. Unfortunately, Cephalometric values are often unreliable in a young child, where neither jaw may be identified as the obvious contributor to a Class III condition. Guyer et al. found 50% of 5-to-7-year-olds to have both retruded maxillae and retruded mandibles, and another 20% to have normal maxillae and mandibles. None of the 13-to-15 year-olds had both normal maxillae and normal mandibles, suggesting either that Class III growth had not yet expressed itself in the younger group, or that longstanding Class III conditions had contributed to making the jaw relations more disproportionate in the older group.

Sue et al. found that the structural etiology varied with different cephalometric analyses. When SNA and SNB were used, the mandible was implicated as the major contributor. But when maxillary depth and facial depth were used from the Ricketts analysis, the majority of cases were classified as maxillary retrusion. Because of the variability of cephalometric analyses, other factors

Fig 1(a&b) Extra oral Features

Fig 2 (a&b) Intra oral Features

Fig 3(a&b) Radiographs

Fig 4(a&b) Rapid Palatal Expander(Hass Type)

must also be considered when planning treatment for the Class III patient. It would be more appropriate to base treatment decisions on the patient's facial profile, since an important objective of treatment is to optimize facial esthetics.

Facial Profile Evaluation

A facial evaluation requires analysis of the overall profile, chin position, and maxillary and midfacial position. In cases with over closure or anterior mandibular positioning, the mandible must be repositioned in a more normal anteroposterior and vertical relationship.

Overall facial profile: Classify the profile as convex, straight, or concave. Focus on areas of imbalance, and on whether the patient has a retruded maxilla or a protruded mandible.

Palatal Expansion

The maxilla articulates with nine other bones of the craniofacial complex: frontal, nasal, lacrimal, ethmoid, palatine, vomer, zygoma, inferior nasal concha, opposite maxilla, and occasionally sphenoid. Palatal expansion affects not only the intermaxillary suture, but all of these circummaxillary articulations.

In a sense, palatal expansion "disarticulates" the maxilla and initiates cellular response in the sutures, allowing a more positive reaction to protraction forces. It also initiates a downward and forward movement of the retruded maxilla. Another advantage of maxillary expansion is the correction of the posterior cross bite

Fig (5) Opening of midpalatal suture

Fig (6) Protraction Face mask along with palatal expander

that often accompanies a Class III malocclusion because of deficient transverse maxillary growth and the abnormal anteroposterior relationship of maxilla to mandible. In addition, a palatal expansion appliance splints the maxillary dentition during protraction and helps to transmit force from the teeth to the maxilla, thus limiting unwanted tooth movement.

Case report

A female aged 7 years,3 months, presented to the Department with the complaint of mild skeletal Class III relation and concave profile due to maxillary retrusion, a bilateral posterior crossbite due to a narrow maxilla and an abnormal anteroposterior relationship of maxilla to mandible and maxillary incisor winging (fig:1&2)

Fig 7(a,b,c&d) Post Treatment Views

A Hass type palatal expander (fig: 4) was given .Palatal expansion was initiated one week prior to delivery of protraction appliance. After one week an occlusogram is taken and confirm the split of the midpalatal suture (fig:5). . In instances in which no transverse change is necessary, the maxillary splint is activated once a day for eight days to produce a disruption in the sutural system that facilitates the action of the facial mask.

The position of the crossbar is similarly adjusted in the vertical dimension to allow the elastics to pass through the interlabial gap without producing discomfort to the patient. The elastics travel in an inferomedial direction anteriorly from the hooks on the splint to the crossbar. Care must be taken that the elastics do not cause irritation to the corners of the mouth.

Light elastics (150-200g) should be used until the skin over the chin has adapted to the appliance, after which the force can be increased to 400-600g. Depending on the severity of the problem and the age of the patient, 24-hours-per-day wear will usually correct the malocclusion within two to six months. Acceptable results can also be obtained with 14-hours-per-day wear, but it will require longer treatment time.

A Class I molar relationship was established after six months of treatment. Headgear wear was limited to night time after eight months. The results (fig :7) seen at the end of the treatment are a combination of normal growth and development plus possible changes obtained by the use of protraction headgear; chin cup, and orthodontic tooth movement.

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***Senior Lecturer, **Reader, *** Dental Surgeon, Dept of Orthodontics, Azeezia College of Dental Sciences & Research, Kollam**

Diagnose the following case

*Merrin Jose, **Haris P.S., **Nileena R. Kumar, **Sharafuddeen K.P., ***Anita Balan

Fig 1

Fig 2

Fig 3

A 37 year old female reported to the OPD of Govt. Dental College, Calicut with the complaint of a nonhealing ulcer on the lower lip of 2 months duration. She had also noticed the discolouration of the face since past 6 months, which started on the nose and later spread to both the cheeks. (Fig.1,) She also gave a history of exacerbation of the lesions on sun exposure. On examination, there were patchy hyperpigmented areas on the face with a roughly symmetrical distribution on the malar area and bridge of the nose. On the lower lip, there was an ulcerated central zone of about 0.7x 0.3 cm surrounded by white, fine radiating striae (Fig 4). Intraorally, there was an erythematous area of about 1.5 x 1.5 cm on the midline of the hard palate (Fig.5).

1. What is the most probable diagnosis?
2. What is the differential diagnosis?

*PG student, **Assistant Professor, ***Professor and Head, Govt. Dental College, Kozhikode.

ANSWERS

1. Lupus Erythematosus
2. a. Erosive lichen planus
   b. Lichenoid reaction

Lupus Erythematosus represents the classic prototype of an autoimmune disease involving immune complexes. Environmental factors like sun exposure, drugs, chemical substances and hormones have been reported to aggravate the disease. SLE predominantly affects women of reproductive age. In 40-50% of the affected patients, a characteristic butterfly rash develops over the malar area and the nose, typically sparing the nasolabialfolds. Oral lesion comprises of white radiating striae which terminates towards an erythematous area in the centre. Discoid lupus erythematosus (DLE) shows white radiating striae resembling those of oral lichen planus. But the striae present in DLE are typically more prominent, with a more marked hyperkeratinization, and the striae may abruptly terminate against a sharp demarcation. The most common histopathologic features include hyperkeratosis with keratotic plugs, atrophy of rete processes, deep inflammatory infiltrate, edema in the lamina propria and thick patchy or continuous PAS - positive juxtaepithelial deposits. Moderate to high titres of anti-DNA and anti-Smith antibodies are almost pathognomonic of SLE.

Quiz

*Merrin Jose, **Haris P S, **Nileena R Kumar, **Sharafuddeen K P, ***Anita Balan

Q1. Port wine stain on the face along with seizures is seen in:

a) Albright's syndrome
b) Addison's disease
c) Sturge Weber syndrome
d) Rendu Osler Weber disease

Q2. A 13 year old girl reported with a complaint of discoloration of both her primary and permanent dention. Her sister and mother also had similar dentition. The most probable diagnosis:

a) Amelogenesis imperfecta
b) Dentinogenesis imperfecta
c) Fluorosis
d) Tetracycline staining

Q3. Toxic epidermal necrolysis is the most severe form of:

a) Erythema multiforme
b) Toxoplasmosis
c) Noma
d) Sarcoidosis

Q4. A 37 year old HIV infected female patient reported to the OPD complaining of an unpleasant taste in the mouth. Intraoral examination revealed the presence of adherent white plaques that resembled cottage cheese or curdled milk on the palate and buccal mucosa. The lesion is likely to be:

a) Candidiasis b) Leukoplakia
c) Lichen planus d) Histoplasmosis

Q5. Which of the following syndromes is associated with aphthous ulcers?

a) MAGIC syndrome
b) Fancony's syndrome
c) Beckwith's syndrome
d) CREST syndrome

Q6. A 65 year old female denture wearer reported with the complaint of growth in the lower gingiva. It was nontender and firm in consistency. The most likely diagnosis is-

a) Epulis granulomatosa
b) Epulis fissuratum
c) Carcinoma gingiva d) Salivary gland tumor

Q7. A 34 yr old male presented with a white growth which on the tongue, which was slowly increasing in size. It was pedunculated with a rough, cauliflower like surface and was nontender on palpation. The most probable diagnosis is-

a) Verruca vulgaris
b) Papillary squamous cell carcinoma
c) Papilloma
d) Verrucous carcinoma

Q8. The radiographic appearance of the upper right Central Incisor is suggestive of:

a) Developer stain
b) External resorption
c) Internal resorption
d) Lateral periodontal cyst

Q9. A 40 days old baby was brought to the OPD with the complaint of a mobile lower tooth which was not presented at the time of the birth. Identify the condition.

a) Natal tooth. b) Neonatal tooth
c) Eruption sequestrum
d) Bohn's nodules

Q10. A 14 year old boy reported in the OPD with the complaint of unerupted lower right canine. His panoramic radiograph showed a characteristic appearance. Identify the condition.

a) Dens evaginatus
b) Odontome
c) Dens in dente
d) Odontodysplasia

ANSWERS 1.c, 2.a, 3.a, 4.a, 5.a, 6.b, 7.c, 8.c, 9.b, 10.b

*PG student, **Assistant Professor, ***Professor and Head, Govt. Dental College, Kozhikode.

Secretary's report and Association news

Together we did it!

My dear fellow Members,

An IDA year has gone by. For me, everyday was filled with activities and was not at all hectic because of the enthusiasm and support given by you all.I could able to visit so many branches and the response from everywhere was so encouraging and acts as energy boosters to work more. Thanks to Dr.Samuel K.Ninan who stood with me in situations when I needed to be stubborn for the sake of betterment of the association. We believed we can bring in change-a change you can believe in . We brought a change in effectively communicating with you, in proficiently sending the annual report, in actively participating in an epic strike that yielded fruit to the fraternity by implementing the Hospital protection bill,in improving the technical skills of members by conducting innovative CDE programmes and above all as responsible citizens served the underprivileged .

All this good work has been rewarded by the Almighty! The heap of National awards enlisted below bears testimony to that.....

Dr.Shibu Rajagopal
Hon.Secretary
IDA Kerala State.

AWARDS

1.	Dr.Jangoo Kapadia Trophy	-All Round Activity(State branch)	-IDA Kerala State
2.	Dr.Bellies Award	-Best State Branch journal	-IDA Kerala State(Dr.K.Nandakumar)
3.	Appreciation Award	-Student Activity	-IDA Kerala State
4.	Appreciation Award	-Best State Branch Web Site	-IDA Kerala State(Dr.Rajeev Simon)
5.	Special Appreciation Award	-Best State Branch President	-Dr.Samuel K.Ninan
6.	Dr.B.R.Chopra Award for	-Best State Branch Secretary	-Dr.Shibu Rajagopal
7.	Appreciation Award	-Best CDE Chairman	-Dr.Jaibin George
8.	Appreciation Award	-Best CDH Chairman	-Dr.Joseph.C.C
9.	IDA Thane Branch Award	-All Round Activity (Local Branch)	-IDA Malappuram Branch
10.	Dr.V.M.Veerabahu Runners Up Trophy	-All Round Activity	-IDA Central Kerala Kottayam Branch
11.	Dr.Keki Mistry Trophy	-Scientific Activity (Local Branch)	-IDA Malappuram Branch
12.	Dr.Krishna Nayak Trophy	-Best Local Branch President (IDA Malappuram Branch)	-Dr.Deebu J Mathew
13.	Dr.Krishna Nayak Trophy	-Best local Branch President (Runners Up)	-Dr.Augustine .J.C (IDA Central Kerala Kottayam Branch)
14.	Dr.I.R.Goela Award	-Best Local Branch Secretary (IDA Malappuram Branch)	-Dr.Rajesh Raveendranathan
15.	Dr.I.R.Goela Award	-Best Local Branch Secretary (Runners Up)	-Dr.Aby Jose (IDA Cental Kerala Kottayam Branch)
16.	Dr.G.B.Shankwalkar Memorial award	-Best CDH Activity(Local Branch)	-IDA Central Kerala Kottayam Branch.
17.	Dr.B.Subhash Chandra Shetty Award	-Best Local Branch Journal	-IDA Central Kerala Kottayam Branch
18.	Dr.B.Subhash Chandra Shetty Award	-Best Local Branch Journal (Runners Up)	-IDA Kunnamkulam Branch
19.	Dr.Ramakanth Venson Award	-Best Local Branch Student Acivities (Runners Up)	- IDA Malappuram Branch
20.	Appreciation Award	-Free Fixed Ortho treatment & Free Composite Veneering for poor	-IDA Central Kerala Kottayam Branch.
21.	Appreciation Award	-Vision 2010 & Oral hygiene Chart for blind in Braille	-IDA Kunnamkulam Branch
22.	Appreciation Award	-Electronic Journal IDA Central Kerala Kottayam branch	-IDA Kunnamkulam&
23.	Appreciation Award	-Best lady President of IDA Local Branch	-Dr.Merlyn Alias-IDA Malanad Branch.
24.	Appreciation Award	-Best Presentation & Documentation of Branch activities	-IDA Malappuram Branch
25.	Appreciation Award	-Free Complete Denture delivery IDA Malanad Branch	-IDA Malabar Branch &

PRESIDENT & SECRETARY SEMINAR – ACQUIRE 2011

The President Secretary Seminar of IDA Kerala state ACQUIRE 2011 was held on Sunday, 30th January 2011 at Hotel K.K. Residency, Payyanur. The inaugural function started at 10. Am. Chief coordinator of the programme, Dr. Sreekumar Nambiar welcomed the gathering and Dr. Santhosh Sreedhar President, IDA Kerala State presided over the function. IPP Dr. Samuel. K. Ninan introduced the Chief guest in a befitting manner. Dr. George Thomas, President, IDA Head office for the year 2011 was the chief guest and he inaugurated the programme by lighting the lamp in a traditional manner. In his inaugural address he congratulated IDA Kerala state for the innovative projects and programmes undertaken for the benefit of the members and also for the community. President elect Dr. M. Raveendranath, Vice Presidents Dr. Anil.G, Dr. Sanal. O.V and Dr. Joseph. C.C offered felicitations. Coordinator Dr. P.K. Jayakrisnan presented the memento to the chief guest. Almost all the President and Secretaries attended the programme. Hon. Secretary Dr. Shibu Rajagopal proposed vote of thanks.

After the inaugural function, the plenary sessions started at 10.45 am.

1) Topic : Project and programmes for the year 2011
   Faculty : Dr. Santhosh Sreedhar
2) Topic : Constitution and Bye Laws
   Faculty : Dr. Viswanath. V
3) Topic : Award Guidelines
   Faculty : Dr. Antony Thomas
4) Topic : To be a Successful President
   Faculty : Dr. C.K. Ashokan
5) Topic : Your Role as IDA Secretary
   Faculty : Dr. Shibu Rajagopal
6) Topic : Women Dental Council
   Faculty : Dr. Marilyn Alias
7) Topic : The Leader in You
   Faculty : Rtn. Dr. Senthil Nathan Siva
8) Topic : C.D.H. Activities
   Faculty : Dr. Abdul Latheef.K.H.
9) Topic : C.D.E. Activities
   Faculty : Dr. Deepu Jacob Mathew
10) Topic : Membership Development
    Faculty : Dr. Oomen George
11) Topic : Publications
    Faculty : Dr. K. Nandakumar
12) Topic : IDA Hope
    Faculty : Dr. Madhavan Kutty
13) Topic : Website
    Faculty : Dr. Rajeev Simon

After the plenary sessions Dr. Joseph.C.C briefed about the Dentist Day Celebrations. Dr. Lin. Kovoor, Co Chairman, 45th KSDC explained about the Venue, Scientific sessions, Conveyance, Registrations and Arrangements about the 45th Kerala State.

In the valedictory function, Dr. Mahesh Narayanan secretary IDA Kodungalloor Branch and Dr. Noorudheen, President IDA Kochi branch and Dr. Antony P.G., President, IDA Central Kerala Kottayam evaluated the programme on behalf of all the secretaries and presidents present Coordinator Dr. Rajesh.E proposed vote of thanks and the programme ended at 5 pm. It was a well attended programme and every one appreciated the arrangement and food. The programme was hosted by IDA Coastal Malabar Branch and sponsord by Colgate Palmolive India Ltd.








IDA HOPE

Dr.Nizaro Siyo
HOPE Secretary

Highlights of IDA HOPE
2010 at A Glance
·Memberships
Total membership as on date: 1513
1413 renewed
102 new
31 not renewed
1 expired

Any member who wishes to renew their membership may still do so before the 31'st of March 2011 by paying their dues along with a fine of only Rs. 100/- to avoid being deleted from the HOPE roster. Re entry shall be only as a new member.

Renewal period: Renewal period is MarchPease look up your dues at the website. You may contact your branch representative for information on your payments. All renewals shall be through the branch representative only. Payments may be made by cash/cheque/DD payable to IDA HOPE. All new members please obtain a separate DD as the date will be your date of commencement of benefits of the scheme. Please obtain receipts of your payments from your branch representatives.

Applications: All applications shall be in the prescribed forms accompanied by copies of your degree certificates, certificate of registration and proof of age. All applications are to be forwarded through the branch representative. Please keep in mind that all members of HOPE shall necessarily have to have their IDA memberships also renewed for it to be valid.

EOGM: An EOGM with a single agenda (Future Plans) shall be held on 6'th of March 2011 at Calicut. Please await your official communication.

Rs.3,00,000/-Fraternity contribution was paid to the Nominee (Son) of Dr. Ramakrishnan who expired last year.

Corpus Fund: Capital corpus fund in excess of Rs. 85 lakh. All well maintained and accounted for in trusted institutions.

Legal affairs/ disputes: In all, 13 cases pending in various courts of law within the state; 2 settled in our favour; more settled following legal advice without moving the court.

Common case sheet: We encourage and promote the use of a common case sheet, prepared and approved by the HOPE AGM. This is an absolute necessity for fighting legal tussles in court. Please avail the format from the website. Please make necessary alteration if you must, but without omission of the content.

A special mention to the team who are working out of their skins to run this scheme smoothly.

CDE

Dr. Deebu .J. Mathew
CDE Convenor
IDA Kerala State

Friends,

Season's greetings and wishing you a prosperous and fulfilling New Year. Dentistry in general is a branch that has been evolving rather rapidly the world over. In India we are at a cross roads and everyday brings something new to our doorsteps. The developments seen in our specialty are mainly categorized in three areas- materials used, techniques invented and educational or curricular changes. It is up to each one of us to keep abreast and the advances and modify our practices and instrumentation accordingly.

It is my personal belief that the most effective mode of keeping in touch with scientific developments is through the continuing dental education programs conducted by the Indian Dental Association. Many a practitioner has been able to fine his skills and often improve his practice with the aid of IDA innovative programs. Keeping in mind the requirements of the members of our organization I have charted a series of programs which hopefully should be beneficial for everyone.

Most of our scientific knowledge is updated through CDE events and it is my intention to hold programmes with high content worth.

Based on the feedback received from various quarters the average member would like to attend events which comprise a didactic session and a demonstration session. Based n these inputs on the anvil are various intensive training sessions. Details of these events will be given in these columns as and when the arrangements are complete. I whole heartedly appeal to all of you to air your views on any aspect of my portfolio so as to enable me to serve you better.

Once again wishing you a prosperous year ahead, expecting your valuable support and involvement.

Thanking you

Dr. Deebu J. Mathew

NB: On behalf of IDA Kerala State, I take this opportunity to invite you to the first CDE program of the year 2010-11, an innovative program-"ROTARY ENDODONTICS SIMPLIFIED which discusses the various rotary systems available in the market and the effective way in combining these system en route to a successful endodontic procedure. Dr. RVS Chakradhar Raju and Dr. Sunil Rao both eminent endodentists in thir own right will hold forth on the above mentioned topic at Kollam on the 20th of February 2011

CDH Year Plan
11 projects for 2011

Dr Abdul Latheef K H
CDH Chairman

Dear friends,

The CDH wing of IDA Kerala state has planned several programmes this year aiming at improvising the public dental health awareness. We are living in a world which has become increasingly complex. So the responsibility of a professional organization like IDA is high. Especially in a state like Kerala where 35,000 new cancer cases are reported every year ! . Among this 50% of the cancer cases in males accounts for the tobacco consumption.

Let me invite your attention in to the depth of this issue and at the same time sincerely requests you all to put your maximum efforts in conducting the following programmes successfully. These are some important platforms where a prestigious member of Indian Dental Association can mark his commitment and responsibility to the country.

1- Wolrd Community Palliative care Day - January 15th
2- Dentist's DAY - March 6th
3- Hemophilia Workshop - April 17th
4- Word No Tobacco Day - May 31st
5- Ashakiran(IDA-IAPC Palliative care project) Workshop - June
6- Oral hygiene Day - August 1st
7- Sandwanam'-clinic (Adoption of old age homes & orphanages to provide free dental treatment) - August 15th
8- World Oral health Day - September 12th
9- IDA Kerala blood donors forum formation & releasing of the directory - October 1st (blood donor's day)
10- Prathyasha (free denture programme) - October 2nd (senior citizen's day)
11- Workshop on HIV/AIDS in dental practice - December 1st (AIDS day)

Apart from these & the routine CDH activities like dental camps & NOHP have to be conducted in a big way, aiming at improving the dental health awareness among the public .Certain special programmes like 'Dhandhaaroghyam' magazine & animation movie are still under discussion. I am looking for novel projects from each branch.

Within the last one year ASHAKIRAN, our palliative care project has become so popular. Each branch should take up all projects of Ashakiran, to increase the participation of dental surgeons in the field of palliative care. The foundation course in palliative care for dental surgeons is a unique programme in the history of the world. All branches should take up the Ashakiran Edu Care scheme in a big way to support the education of the dependants of palliative care patients. Continous support and care is inevitable for the success of the Ashakiran rehabilitation programme. So please give extra care to promote Ashakiran patient drape and table cloth.

Most of the countries in the developing world including India are undergoing health transitions .Non communicable diseases are becoming as big a problem for the middle and low income countries as for the high income countries.With rapid rise in the percentage of old people in the population and prevalence of chronic illness in the community, there is a steady increasing number of bed ridden and incurably ill patients in these countries. Most of these patients do not have access to appropriate care.The only possible option is to have palliative care with community participation.Let us work together to develop ASHAKIRAN as a national programme from the God's Own Country ….!

Thanking you,

Dr. Abdul Latheef K H
CDH Chairman

Indian Dental Association, Kodungallur branch under Indian Dental Association – Kerala State donates ambulance van as part of "Asha Kiran"- Pain and Palliative Program of IDA Kerala State

Asha kiran is the venture of IDA- Kerala state in association with Indian Association of Palliative Care(IAPC). Through this community project members of Indian dental association of Kerala actively take part in the care of terminally ill patients as well as provide solace and means of livelihood for patients who are bedridden and under palliative care. This project also supports the education of children of patients who are terminally ill. It is with great pride we say that Asha Kiran project has succeeded in bringing smiles back into the life of many patients.

World community pain and palliative care day was observed by IDA kerala state at Kodungallur on January 15th 2011 Saturday at 10am at IMA hall . In the program hosted by IDA kodungallur an ambulance van was donated to pain and palliative care centre of kodungallur. The ambulance was purchased from the voluntary contributions of members of IDA kodungallur. In the function presided over by the IDA Kerala State President, Dr Santhosh Sreedhar, the chief guest Honourable member of Parliament Mr K P Dhanapalan handed over the ambulance key to the president of Pain and Palliative centre. Guest of honour was municipal chairman Smt Suma Sivan. CDH convenor Dr Abdul Lathif elaborated about Asha Kiran Project of IDA kerala State. Dr. Sunil K B president of IDA Kodungallur welcomed the gathering. Dr O V Sanal, Vice president IDA kerala state, Dr Tennyson Chacko- Asha Kiran Coordinator- Kerala State, Sri N Madhavan Kutty patron- Health Care institute, Dr G Premkumar Past president IDA Kerala State and Adv T K Prabhakaran- secterary Health Care Institute felicitated the audience. Dr Mahesh Narayanan, Secretary IDA Kodungallur proposed the vote of thanks. The program was well attended by IDA members, IMA members, pain and palliative volunteers, politicians, well wishers and was well covered in the media.