



KDJ

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President's Message



Dr. K.N. Pratap Kumar

Dear colleagues,

As I sit to write this message, I suddenly realize that I am writing the last message of the current IDA year 2008- 09 and that one year of President ship tenure is coming to close very shortly. One does not realize how fast the time flies. However, when I look back on the year going by, I find that it was one of the best years in my life. Where ever the hon. Sec and I went during the year and we were constantly on the move, the kind of love, affection that we receive would remain our most cherished memory for the rest of our lives.

We are all born to lead successful lives. We often hear commends like this person is just lucky, he touches dirt and it turns to gold, or he is unlucky no matter what he touches it turns to dirt. It is our conditioning that leads to failure or success. We need to feed our mind with the pure and the positive to stay on track.

There is a bamboo tree that is planted, watered and fertilized for the first four years and nothing happens. There is no visible sign of growth. But sometime during the fifth year the bamboo tree grows about 90 feet in 6 weeks. The question is : did the bamboo tree grow in 6 weeks or did it take 5 years to grow? If the bamboo had not received water and fertilizer during the 4 years, when there was no visible sign of growth, would the plant had flourished? No. The bamboo tree would have died. The lesson is clear : have patience and faith and keep doing the right thing. Even though the results may not be visible, something is happening.

We need to bring new members who want to contribute their talents to our association. We need to make them want to join us, to be inspired by our ideas, they devote their time for projects and take on responsibility. Encourage younger fellows to offer their talents and efforts. New ideas, energy, excitement, youthful exuberances thus characterizes the activities of branches.

As we look back at the year just about to

end, and we see all the branches and their leaders once again it becomes amply clear that those who succeeded and reached their goals and targets were the ones who were well organized and also had the attitude of learning and walking ahead. They were the ones who were ready to take up every challenge. They never had an excuse to offer infact their willingness to accept responsibility gave them this success. Sheer hardwork and dedication not only by themselves but by their whole team made it possible. I congratulate all the branch members and their leaders for having an outstanding year and hope we would be able to continue the good work.

Why don't people achieve excellence? The big reason is lack of vision or limited vision. We need to dream beyond what is possible. Every thing that we see today was a dream before it became reality. Live with enthusiasm, direction and a sense of purpose.

Benjamin Franklin said "when you are good to others, you are best to yourself". The biggest hurdle in building a positive relationship is ego. Ego is self intoxicating. Hard words can hurt feelings and destroy relationships. Words spoken out of bitterness can cause irreparable damage.

Change is inevitable whether we like it or not it is there. A new team of office bearers will replace the existing ones. It is on November 22nd eve at Calicut State Conference I hand over my collar to the new President. I wish the new team and all of you a harmonious and melodious IDA life. Learn to excel in life and in profession continues.....

With regards and best wishes

A big thank you

Yours in IDA

Dr. K.N. Pratap Kumar

Can we do research in the clinic

Research is always considered to be the prerogative of academic institutions. No doubt environment is favourable in an academic institution. To be precise there is compulsion on postgraduate students to complete a project / dissertation as part of the curricular requirements. This makes the teachers also to involve in research to some extent. A practicing dentist feels that he cannot do research because he feels that research requires sophisticated machines, advanced theoretical knowledge and statistical skills. A dentist has an opportunity to come across different clinical conditions on a daily basis. Only requirement is to have a detailed clinical record and analyze them at the end of every month and every year. Take the month of September. Can you find out the age and sex distribution of your patients? What was the common disease – dental caries or periodontal disease? How many dental extractions did you do? What was the reason for the extraction? How do they clean their teeth? How much time do they spend on brushing? Which brand of paste and brush do they prefer and why? Which restorative material did you use? How many complete dentures did you do? What was the age and sex of those complete denture patients? Have you come across a case of oral cancer? There are many such questions for which you can find answers. An IDA branch can compile this information collected from its members and find out the dental health requirements of that region. Presently we lack data – truthful data – and hence we cannot convince the authorities on the gravity of dental health needs of the state. We must take cues from the American Dental Association. ADA has specified the research avenues to be undertaken by practicing dentists. A few examples are cited here: (1) evaluate the safety and effectiveness of new and existing therapeutic and cosmetic products, methods, instruments and technologies used in dentistry through longitudinal assessment of safety and patient outcomes, including pre- and post-market studies. (2) expand the scope and use of dental practice-based research networks to advance patient care and address clinically relevant research questions of interest to the profession. (3) understand the scientific basis of the relationship between oral health and systemic conditions, and to evaluate the impact of dental interventions on these systemic conditions. All these areas become relevant to us also because we have started treating international patients. We should be aware of the disease conditions which are prevalent in them otherwise we will be taking a risk. We cannot place any implant in our patients unless we are sure of the studies conducted using the same brand. Our research task will be first to compile a data of our patients, obtaining data on the materials we are going to use for the first time, collect feed back from patients, discuss failures with manufacturers, verify their answers with published data and transmitting the information to colleagues. It is time we become alert and justify our treatment, based on available evidence. Research is no more a fashionable jargon but a necessity for evidence based practice. We can do research and let us start it now.



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As a matter of fact, dentistry hadn't been a medical specialty till the end of the seventeenth century. Since the 17th century first works on stomatology have been published in France. The first dental chairs were inconvenient and looked like torture facilities and were extremely inconvenient for a patient. The first dental chair used in the US was an ordinary chair, adapted for dental use with a padded head rest (1790). Morrison's dental chair, introduced in 1867, could be tilted to either side as well as backward. It also had an immense vertical range, from 15 inches to almost four feet above the floor. Modern dental chairs are real masterpieces. The modern concept of a floating dentist chair without a floor-base gives an additional economy of space for work. It includes a module for a dentist containing tools and instruments. The control panel regulates air, water and spray supply for the tools. With this convenient control panel you can also adjust speeds of the micro engine. You can also choose from various chair positions. In addition, the entire surface is covered with an antibacterial coating.

*Theme for the first four issues was 'past and present'
Cover credit Sudheer and K. Chandrasekharan Nair*

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Current status of dental materials research in SCTIMST, Trivandrum Part II: Synthetic bone graft materials

* Manoj Komath and H.K.Varma

Introduction

Bone grafting in dentistry concerns with the replacement or augmentation of defective bone around the teeth. Periodontal disease, trauma, infections and tooth extraction can lead to structural defect in bones or may reduce the bone volume which can affect oral functions. Developmental imperfections also demand surgical correction. Replacing and augmenting of bone are done to manage infrabony defects and facial clefts. Sinus lifting and extraction socket filling are performed to obtain proper bone mass to fix the implants. The success of grafting will depend upon the choice of the graft material as well as the surgical technique.

The following section reviews various kinds of graft materials, synthetic as well as natural, which are in use in dental and oral surgery.

Natural bone graft materials

The gold standard in bone grafting is autografts, i.e. patient's own bone taken from intra-oral sites (the maxillary tuberosity or a healing extraction site) or extra-oral sites (like the iliac crest). Freshly harvested autologous bone contains all the cells and growth factors necessary for the remodeling of the defect site. The attraction of autogenous bone grafts is their osteogenic potential and perfect compatibility.¹ However, autografting is not performed in all cases because it requires a second surgery for harvesting and the harvest volume is often limited.

Allografts, i.e. processed and banked cadaveric bone, are considered an alternative to autologous bone. Iliac cancellous bone and marrow, normal freeze-dried bone and decalcified freeze-dried bone (DFDBA) are available, practically unlimited, for grafting.^{1,2} However, different batches of allografts show variation in biological activity and resorption rates. No strict standards exist for bone banks in evaluating the potency of their preparations prior to sales. Also, there are concerns on the possibility of viral transmission.³ Above all, the use is controlled by the proximity of bone banks.

Xenografts, the bone derived from other species (mainly bovine), are used when allograft tissue banks are not accessible. These are also referred to as *anorganic bone*, since the processing removes all cells and proteinaceous material. At the best, they act as inert absorbable bone scaffolding, upon which revascularization, osteoblast migration and woven bone

formation supposedly occur.⁴ Processed bovine bone is generally considered inferior to allografts. The material poses the risks of cross-species pathogen transmissions and immune responses.⁵

Bone derivatives (collagen, growth factors and proteins) are another class of natural materials suggested for bone grafting, by virtue of their biological potency to enhance bone remodeling. Demineralised bone and several collagen-based products are available commercially.⁶ Enamel matrix derivative (EMD, the proteins isolated and purified from developing porcine teeth) is also tried, with favorable outcomes.⁷

Synthetic grafts materials

The advances in biomaterials science from 1970s onwards has led to the emergence of synthetic materials and scaffolds which can regenerate bone tissue. These are termed as *alloplasts*, which comprises of bioceramics (or biocompatible inorganic compounds), polymers and metals, alone or in combinations. Calcium phosphate ceramics are preferred because they show *in vivo* resorption. Polymeric alloplasts could be shaped easily and therefore used as scaffolds for tissue. Metals offer mechanical strength and are useful as implants.

Bioactivity (ability to establish chemical attachment with hard tissue) and *osteoconductivity* (capacity to allow bone tissue to grow over the surface) are desirable for alloplast materials. Osteoconductive and resorbing materials will be replaced with natural bone as they get resorbed into the body. The resorption rates depend on the chemical make-up, form and porosity of the material and also on the location of grafting. Alloplastic grafts that are not resorbable, will act as a scaffold, on top of which natural bone can be built up.

A multitude of alloplast products are introduced in the market during the past 3 decades. These could be classified as calcium phosphate bioceramics, glassy materials (bioactive glasses and glass ceramics), composites, bioactive cements and bioactive coatings.

Calcium Phosphate Bioceramics

Among the synthetic bone graft materials, calcium phosphates are of prime importance because of the ease of synthesis, biocompatibility and osteoconductivity. Most popular compounds are hydroxyapatite (HA, $\text{Ca}_{10}(\text{PO}_4)_6(\text{OH})_2$) and tricalcium phosphate ($\hat{\text{a}}$ -TCP, $\text{Ca}_3(\text{PO}_4)_2$). These are fabricated as blocks, rods and



Fig 1. Hydroxyapatite porous granules (2mm-3mm size)



Fig 2. Management of periodontal defect using fine grade bioactive granules. The top panel shows the surgery with (A) defect exposed and (B) graft in place. The radiographs are shown in the bottom panel as (C) pre-operative and (D) 12 months follow-up. (Picture courtesy : Dr.JB Rajesh and Dr.K.Nandakumar)

granules, in porous and non-porous forms through ceramic routes. They provide scaffolding for bone regeneration and augmentation for osseous tissue ingrowths. Porosity (100-500 microns) with interconnectivity (>100 microns) is the most essential prerequisite, so as to allow vasculature and bone growth inside.⁸

Hydroxyapatite (HA), the basic mineral of bone, is explored extensively for bone grafting applications. HA is an osteoconductive material and when used in porous form, it is found to act as a slow resorbing scaffold. Ceramics of tricalcium phosphate (̂-TCP) show faster *in vivo* resorption and provide high local concentration of calcium and phosphate, thereby helping the growth of new bone. HA-TCP 'biphasic' compositions are also designed which provide tuned resorption according to the need.

In controlled clinical trials using both porous and non-porous calcium phosphate ceramic grafts, the grafted sites have shown significant clinical improvement compared to non-grafted controls.^{9,10} Main clinical uses of calcium phosphate bioceramics are in osteotomies (as bone graft substitute or extender), in the management of periodontal bony defects and cysts, and in the repair of maxillofacial/mandibular defects.

Bioactive Glasses and Glass Ceramics

Glassy materials having bioactivity do not have any natural analogue; they are purely synthetic compositions having superior osteogenic potential compared to calcium phosphate ceramics. The glassy structure and the bioactivity are the results of the silica content in the material.

A typical bioactive glass composition basically

contains CaO, SiO₂ and P₂O₅. A number of formulations are identified in this family (with one or more additives like Na₂O, MgO, NaF, CaF₂, B₂O₃, Al₂O₃ etc.), which show chemical bonding with host tissues. Silica chains in the material act as a container for other ions such as Na, Ca, P etc, and provide Si-OH groups for surface reactions when implanted in bony sites. The dissolution of ions produces local supersaturation, leading to the formation of *carbonate-apatite* (hydroxyapatite with substituted carbonates) layer and subsequent establishment of bonding with the host (bone) tissue. Bioactive glasses are able to bond with soft tissue as well, which makes them ideal for special applications like middle-ear implant.¹¹ In dentistry, bioactive glass cones are used for endosseous ridge maintenance¹² Bioactive glasses generate good clinical results when used as graft materials and the related products are in extensive use to treat infrabony defects.¹³ Glass-ceramics also contain silica and are characterized by the presence of crystalline phases inside a glassy mass. The crystalline particles enhance the mechanical strength and machinability of parent glass. A typical glass-ceramic composition contains 20% hydroxyapatite, 55% calcium silicate (wollastonite) and 15% beta-tricalcium phosphate (whitlockite). These are also known as Apatite-Wollastonite (A/W) Glass Ceramics.¹⁴ Glass-ceramic materials are considered superior to bioactive glasses in load-bearing capacity and they have clinical applications similar to those of hydroxyapatite and bioactive glasses.¹⁵ Combinations of ceramics and glasses are also designed, to have tuned bioactivity and resorption.¹⁵

Bioactive Composites

Composites materials are another class of synthetic

grafts, which refer to particles of bioactive ceramics or glasses dispersed in a biocompatible polymer matrix. These could be fabricated to any shape and it is possible to tune the mechanical properties to that of natural bone. The bioactive particles exposed on the surface provide osteoconductivity and form stable tissue interface.¹⁶

Composites help in constructing large single pieces of grafts (like the cranial bone), which is not possible with the brittle bioceramics and glasses. Polymer matrices used are polymethyl methacrylate (PMMA), polyethylene (PE) and hydroxyethyl methacrylate (HEMA). These composites are generally non-resorbable, where as composites made using polymers like poly-L-lactate (PLLA) are bio-degradable and undergo slow resorption.

Composites, combined with modern fabrication techniques, are of immense help in orbital floor reconstruction, maxillofacial correction etc. Several new polymer-ceramic composites (polymers like polylactates, polyglyconates, polyhydroxybuterates and methacrylate, and their derivatives, reinforced with hydroxyapatite and alumina) are developed in the recent years for custom applications. Another notable material is stainless steel fibre-bioactive composite.¹⁶

Bioactive Cements

Bioceramic and bioactive glass are rigid materials and it is difficult to achieve conformal filling of intricate defects with them. Osteoconductive and self-setting inorganic cements are suitable in this regard. Though the strength is lower, they have the advantage of mouldability. Also, the cements could be made injectable which make them fit for applications like minimally invasive fracture fixation.

The earliest in this category is calcium sulphate (in hemihydrate form, better known as 'plaster of Paris'). Being inexpensive, biocompatible, mouldable and resorbable cement, it has been used for guided tissue regeneration (GTR) in periodontal repair.¹⁷ It is also used as a binder for allograft and alloplast materials.¹⁸ However, the fast resorption and lack of osteoconductivity limited the extensive use of calcium sulphate as a bone graft material.^{17,19} More recently, a similar class of cementing materials, known as calcium phosphate cement (CPC) evolved, with better osteoconductivity and slower resorption.^{20,21}

Calcium phosphate cements are mouldable, self-setting alloplast materials, which get converted to hydroxyapatite (the basic bone mineral) on setting. They possess osteoconductivity comparable to their ceramic counterpart and have already made impact in skeletal repair.²¹ Calcium phosphate cements apparently combine the good features of a graft as well as a GTR membrane. Some early results are available on the use of CPC in human periodontal intrabony defect management, which record improved clinical outcome compared to open-flap debridement.²²

Bioactive Coatings

Brittleness and low machinability make bioceramics and bioactive glasses unfit for making load-bearing implants. Whereas metallic implants do not possess bioactivity and tends to form a fibrous interface with the host bone and undergo loosening in due course. The longevity of metallic implant could be enhanced by providing coatings of calcium phosphate ceramics or bioactive glass on their surface.²³

Various techniques are adopted to make coatings of bioactive materials on metallic implant surface, like plasma spraying, sputtering, ion beam deposition, pulsed laser deposition, sol-gel deposition, electrochemical coating and biomimetic processing.²⁴ Out of these, only plasma spraying is proved to be commercially feasible. In this technique, the ceramic powder is fed to a stream of gas plasma at high temperatures and directed towards the substrate (implant). The partially molten powder get adhered and spread on the surface. It is possible to coat large areas at high rates, with this technique²⁵. Hydroxyapatite plasma spray coatings are proved to induce bone contact to the implant and to improve the implant fixation.²⁶ However, the adhesion of the coating with substrate (titanium implant) surface is generally poor which can lead to peel-off problems. Alteration of chemical phases during the spray process and poor control of thickness and surface morphology are other concerns.

Pulsed laser deposition is being investigated as an alternative to make bioactive coatings on metallic implants. This technique involves the ablation (i.e. evaporation through high energy transfer) of the bioactive material with the help a powerful laser beam and the subsequent coating over the metal. Improved coating adhesion with correct chemical composition could be achieved. The coating thickness and microstructure are controllable.²⁷

Other coating techniques are not viable as far as the deposition rates are concerned. Additional processing for adhesion, densification and phase preservation are to be done.

Synthetic bone graft materials research at SCTIMST

Bone graft products

The Biomedical Technology Wing (SCTIMST) is working on synthetic bone graft materials for applications in orthopedics and dentistry. Several know-hows for making products based on calcium phosphate ceramics, bioactive glass compositions, bioactive cements and polymer-ceramic composites are developed over the past decade. These products are characterized for phase purity, composition and morphology as per international standards such as American Standards for

Testing of materials (ASTM). After ensuring the required functional and chemical properties, they are subjected to biological evaluation based on ISO 10993. The sequence of evaluation starts from screening tests like *haemolysis test* (for blood compatibility) and *cell-culture cytotoxicity test* (for cell compatibility).

This will be followed by a battery of toxicological tests (like acute systemic toxicity test (in mice for systemic response), intracutaneous reactivity test (in rabbits for skin response), muscle implantation (in rabbits for soft tissue response), pyrogen test (in rabbits for presence of pyrogens) and maximization sensitization test (in guinea pigs for allergic skin response). Satisfactory performance in the toxicological evaluation will qualify the material for animal studies (pre-clinical bone implantation). After the pre-clinical trials, human clinical trials will be conducted under specific protocol. After proving the safety and efficacy, the know-how of manufacturing the product will be transferred to the industry.

The related studies resulted several process patents and technology transfers. Some of the in-house developed bone graft products have appeared in the market. An overview of some of the important developmental works done at SCTIMST in the area of bone grafts is reviewed below.

Hydroxyapatite based grafts

The technology of synthesizing hydroxyapatite bioceramics is being pursued in the laboratory for more than a decade. The range of products covers free-flowing powders (in the size range of few microns), granules with interconnecting porosity (graded in size ranges from 300 microns to 5 mm), dense sintered rods and porous blocks.

Hydroxyapatite is prepared by precipitation or through polymer precursor method, using calcium and phosphate salts. The precipitate is filtered, thoroughly washed and converted to free-flowing powder by freeze-drying or spray-drying technique.^{28,29} Once the powder is ready, it is compacted to the required shape by various ceramic processing methods like dry compaction, slip casting, injection moulding etc. *Pore formers* (subliming compounds) of specific particle sizes are added during the processing stage if porous mass is required. The compacted mass is then heat-treated in the temperature range 1000-1200 °C for several hours to get the final ceramic material. This is cut or crushed to obtain the product of required sizes (figure 1).

The know-how of hydroxyapatite porous granules, clinically proven for the management of compression fractures and infra-bony defects³⁰⁻³² is transferred to the industry. Two grades of granules, one less than 1mm size (for periodontal grafting) and the other in the size 2-3 mm (for orthopedic filling) are marketed in the trade names Periobone-G and Orthogran, respectively by M/

s. Dynamic Orthopaedics Pvt.Ltd., (Aluva, Kerala). Another series of products consisting of large hydroxyapatite granules and porous blocks/rods of hydroxyapatite, are transferred to by M/s. Basic Health Care Pvt Ltd (Manimajra, Chandigadh), which are introduced in the market in the trade name B-OstIN.

Also, the know-how for making bb-Tricalcium phosphate is developed.^{33,34} Techniques of microstructure control and novel processing methods are being explored in the lab to make exotic materials like transparent hydroxyapatite.

Bioactive glass-ceramic composite

The studies at SCTIMST on bioactive glass materials culminated into a novel *triphasic bioactive ceramic composite* (SiO₂-CaO-P₂O₅ glass).³⁵ This contains a combination of calcium silicate and calcium phosphates phases, and is synthesized through a non-conventional processing method involving sol-gel chemistry. The composite contains lesser amount of silica than conventional bioactive glasses, but still possesses osteo-inductive capacity.³⁶ The fine granules of this material (with less than 1mm size) are found useful for periodontal grafting (figure 2).

The technology derived from the above studies is transferred to M/s. DORTHOM Medidients Pvt Ltd, Coimbatore, and the company is marketing granules suitable for grafting infrabony defects, in the trade name Grabio Glascera.

Ceramic - polymer Composites

The possibility of making biocompatible polymer-ceramic composite are explored at Polymer Processing Lab at the BMT Wing. A composite with hydroxyapatite powder dispersed in ethylene vinyl acetate (EVA) copolymer is successfully optimised.³⁷ This new class of material can be shaped into various forms by plastic forming methods, making it fit for applications in cranioplasty, as bone scaffold, as bone plates etc.

Injectable Bioactive Cements

Various formulations of calcium phosphate cement are successfully developed in the lab. These are aqueous based cements containing calcium phosphate compounds, which set into hydroxyapatite mass. Formulations are modified so as to obtain fully injectable, solidifying pastes.³⁸

In vitro studies show that the cement is ideal for dentistry in applications like furcation perforation repair, root canal filling/sealing, root apexification and alveolar ridge augmentation, and also as a bone-filler in gaps around oral implants.³⁹ The cement (Chitra-CPC) is tested for safety and efficacy and proved to be safe for human use through toxicological studies. Bone implantation tests in rabbits show that the cement is an osteoconductive and resorbable material which help in the remodeling of defects.⁴⁰ Endodontic usage test of

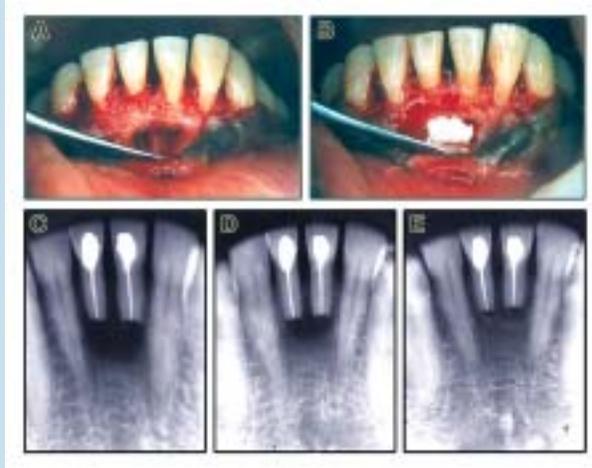


Fig. 3 Repair of periapical lesion using calcium phosphate cement. The top panel shows the surgery with (A) defect exposed and (B) graft in place. The radiographs are shown in the bottom panel as (C) immediate post-operative (D) 6 months follow-up and (E) 9 months follow up. The material is not visible in the radiographs because it is radiolucent but the bone remodeling is evident. (Picture courtesy : Dr.JB Rajesh and Dr.K.Nandakumar)

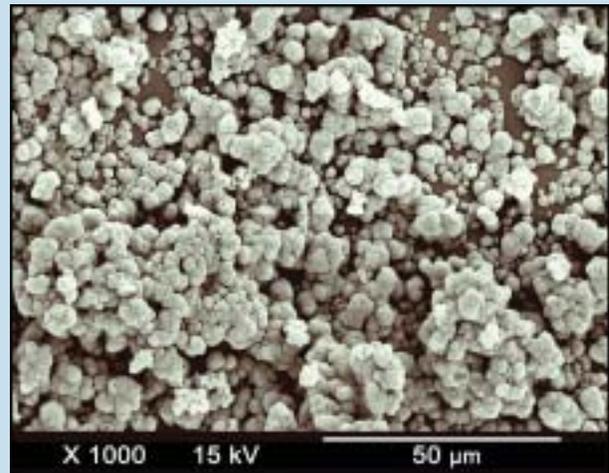


Fig. 4 Scanning electron micrograph of a polymethylmethacrylate film on which hydroxyapatite is grown biomimetically from simulated body fluid. The PMMA surface is functionalized to facilitate the nucleation of apatite (bone mineral) micro-crystals.

the cement is performed to evaluate the compatibility with the periapical tissues. The material is found to be safer than other root canal filler materials.⁴¹ Efficacy of (Chitra - CPC) in the management of human periodontal osseous defects is carried out which proved the material is far more efficacious than hydroxyapatite granule.^{42,43} Figure 3 depicts one of the applications of the cement.

Coating on Implants

The recent initiative in the lab is hydroxyapatite coating on titanium surface using pulsed laser deposition to develop coated implants with bioactive surface. In this technique, a dense target (hydroxyapatite or bioactive glass) is subjected to ablation using an intense laser beam and the material is collected over the implant (substrate) surface kept at temperatures $\sim 400^{\circ}\text{C}$.

A semi-industrial PLD system is set up in the lab to explore the viability of the technique. It consists of a Nd:YAG laser source (355nm) and a vacuum chamber with appropriate holders to mount targets and substrates. Provisions to manipulate the targets and heating the substrates are also provided. Depositions of hydroxyapatite on titanium surfaces is done and the process is optimized to obtain adherent and uniform coating. Investigation of the parameters for improved coating characteristics is progressing.⁴⁴

Other Research Areas of Interest

Biomimetic Processing is an upcoming area, which deals with bioactive calcium phosphate coatings over metallic or polymeric implants from solutions at ambient conditions. The basis of this technique is knowledge about the formation of hierarchical structural constructs

in nature, such as bone, shells of mollusks and crustaceans, and delicate micro-skeletons of diatoms. The environment leading to these structures is re-created in laboratory so that exotic materials can be made. Desired inorganic phase over the biopolymer substrate or template is achieved either through increasing the supersaturation or by surface functionalisation.

Recent studies are contributing significantly towards the basic understanding of physical and chemical characteristics of various material surfaces which can stimulate calcium phosphate nucleation under *in vitro* and *in vivo* conditions. Phosphorylated polymers immersed in simulated body fluid (SBF) solution are found to initiate *epitaxial* growth of calcium hydroxyapatite over their surfaces (figure 4). Growth of calcium phosphate over various biopolymer materials such as cotton, chitin and chitosan, are demonstrated. Biomimetics technique is useful in designing new types of biomedical implant materials with macroporosity that could be used in drug delivery.

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Effectiveness of a diclofenac mouth rinse in controlling pain after periodontal flap surgery

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Abstract

Non Steroidal Anti inflammatory Drugs inhibit pain by acting on peripheral pain mechanism and in the Central Nervous system to raise pain threshold. After periodontal surgical intervention it is seen that 51.3% of the patients report no or minimal post operative pain and only 4.6% report severe pain.

This study had been designed to evaluate the effectiveness of the diclofenac (0.074%) mouth rinse over the systemically administered diclofenac (50mg) in controlling pain after periodontal flap surgery.

A split mouth study was designed wherein ten patients required to undergo periodontal flap surgery in at least 2 quadrants involving at least 3 posterior teeth were included. Each time the patient had to record the level of pain after periodontal surgery using a visual analogue scale twice a day for 4 days.

Results obtained were analyzed statistically by univariate analysis of variance.

Statistical analysis revealed that the mouth rinse was as effective as the systemically administered tablet in the control of postoperative pain after a periodontal flap surgery.

Introduction

Pain is an ill defined, unpleasant sensation, usually evoked by an external or internal noxious stimulus. Pain is a warning signal and primarily protective in nature. It is the most important symptom that brings the patient to the physician.¹

With carefully performed surgical procedures most patients will experience only minimal postoperative problems. After periodontal surgical intervention it is seen that 51.3% of the patients reported no or minimal post operative pain and only 4.6% reported severe pain.² In a few patients who may have severe pain, its control becomes an important part of patient management.²

An analgesic is a drug that selectively relieves pain by acting in the central nervous system or on the peripheral pain mechanisms, without significantly altering consciousness.¹ They may be opioid or non opioid analgesics.

Non steroidal anti inflammatory drugs inhibit pain by acting primarily on peripheral pain mechanisms and also in the central nervous system to raise pain threshold. They block the pain sensitizing mechanism induced by bradykinin, TNF α interleukins and other algescic substances.³ Non steroidal anti inflammatory drugs is associated with increased risk of unwanted effects including gastrointestinal problems, hemorrhage (from decreased platelet aggregation) and renal and hepatic impairment.⁴

Concerns over these unwanted effects directed interest to the topical application of non steroidal anti inflammatory drugs for adjunctive management of

periodontal disease. Such agents could be delivered in the form of toothpaste or as a mouth rinse.^{5,6,7}

Hence this present study has been designed to evaluate and compare the effectiveness of diclofenac sodium mouth rinse with that of the systemically administered diclofenac sodium tablet in controlling postoperative pain.

Objectives of the study

1. To evaluate the effectiveness of Diclofenac mouthrinse in controlling post operative pain using a visual analogue scale.
2. Gauge the patient acceptability of the mouthwash
3. To compare the effectiveness of diclofenac mouth rinse with that of systemic diclofenac sodium in controlling post operative pain.

Materials and methods

Source of data:

Ten patients who were required to undergo periodontal flap surgery in at least 2 quadrants involving at least 3 posterior teeth were included in the study. The age group of patients selected was 20-60 years.

Method of collection of data

A split mouth design was taken in this study. After the 1st flap surgery the patient was prescribed systemic diclofenac sodium 50mg tablet twice daily for 4 days to be taken systemically. After the 2nd flap surgery the patient was prescribed mouthwash containing diclofenac 0.074% w/v.

Criteria for selection of patients

INCLUSION CRITERIA

1. Good general health
2. Patients motivated to perform efficient plaque control
3. Patients requiring periodontal flap surgery in at least 2 quadrants involving at least 3 posterior teeth.

EXCLUSION CRITERIA

1. Smokers
2. Patients taking any Non Steroidal Anti-inflammatory drugs 2-3 days prior to the study.
3. Periodontal flap surgery in the anterior teeth
4. Periodontal flap surgery taking more than 2 hrs.
5. Patients with history of any systemic disease
6. Pregnant women
7. Subjects allergic to Non Steroidal Anti-inflammatory drugs

After taking informed consent from the patient, a detailed periodontal examination of the patients was done. Phase I therapy was performed. Patients were recalled a week after the initial therapy.

After the 1st periodontal flap surgery the patient was prescribed diclofenac sodium tablet 50mg thrice daily for 4 days. (Group-I)

After the 2nd periodontal flap surgery the patient was prescribed 15 ml diclofenac sodium mouth rinse 0.074%w/v to be used 2-3 times per day for a minimum of 1 minute for 4 days. (Group-II)

Postoperative instructions were given to each patient after the flap surgery. Postoperatively, the same antibiotic (combination of amoxicillin 250mg and cloxacillin 250mg) were given to each patient.

Each time the patient recorded the level of pain after periodontal surgery using a visual analogue scale⁸ twice a day for 4 days. The pleasantness and acceptability of the product was also assessed by the patient.

Statistical analysis was performed using a univariate analysis of variance. (ANOVA)

RESULTS

It was deduced from the statistical analysis that the pain perceived was highest on the 1st day after flap surgery. Pain felt was statistically significant on day 1 after flap surgery as compared to days 2, 3 and 4. (p= 0.002) . (table 1)

There was no statistically significant difference in the post operative pain perceived by the patients in between groups I and II on all days. (day 1, 2, 3 and 4). (table 2)

The diclofenac sodium mouth rinse was pleasant and acceptable to all the subjects.

Table I : Tests of Between - Subjects Effects

Dependent Variable: PAIN

Source	Df	Mean Square	F	Sig.
DAYS	3	65.777	78.724	.002
TREATM	1	0.003	.043	.849
DAYS * TREATM	3	.836	.683	.565

Table II Tukeys HSD test for comparison of pain perceived on day 1 2,3,4.

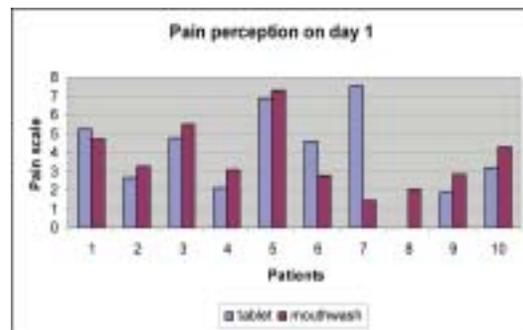
Multiple Comparisons

Dependent Variable: PAIN

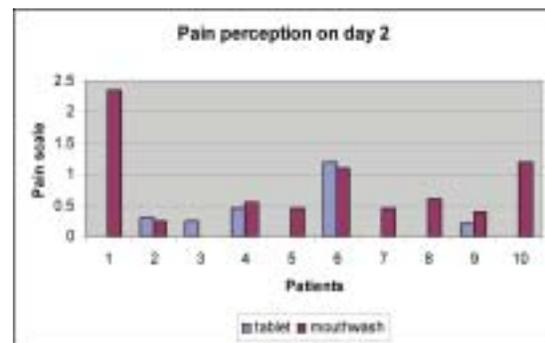
(I) 1=day1 2=day2 4=day4	(J) 1=day1 2=day2 3=day3 4=day4	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
1.00	2.00	3.3325*	.34971	.000	2.4127	4.2523
	3.00	3.8050*	.34971	.000	2.8852	4.7248
	4.00	3.6775*	.34971	.000	2.7577	4.5973
2.00	1.00	-3.3325*	.34971	.000	-4.2523	-2.4127
	3.00	.4725	.34971	.534	-.4473	1.3923
	4.00	.3450	.34971	.758	-.5748	1.2648
3.00	1.00	-3.8050*	.34971	.000	-4.7248	-2.8852
	2.00	-.4725	.34971	.534	-1.3923	.4473
	4.00	-.1275	.34971	.983	-1.0473	.7923
4.00	1.00	-3.6775*	.34971	.000	-4.5973	-2.7577
	2.00	-.3450	.34971	.758	-1.2648	.5748
	3.00	.1275	.34971	.983	-.7923	1.0473

Based on observed means.

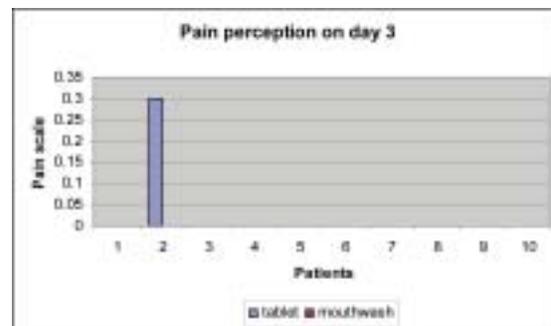
*. The mean difference is significant at the .05 level.



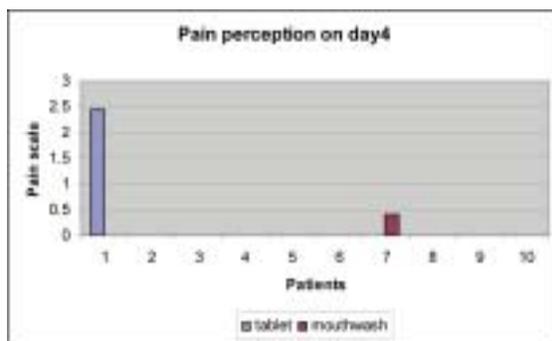
GRAPH 1: Pain perception on day1 between tablet and mouthwash groups



GRAPH 2: Pain perception on day 2 between tablet and mouthwash groups



GRAPH 3: Pain perception on day 3 between tablet and mouthwash groups



GRAPH 4: Pain perception on day 4 between tablet and mouthwash groups

Discussion

This pilot study was designed to evaluate the efficacy of diclofenac sodium mouth rinse over the systemically administered diclofenac sodium tablet in the control of post operative pain.

After surgical intervention it is seen that 51.3% of the patients reported no or minimal post operative pain and only 4.6% reported severe pain. Of these only 20.1% took 5 or more doses of the analgesic.⁹

In this study, a visual analogue scale has been used to assess the pain perceived by the patient. This may have caused some problems as some subjects may not understand it conceptually.

We can deduce from the statistical analysis that the diclofenac sodium mouth rinse is as effective in controlling postoperative pain as systemically administered diclofenac sodium tablets.

The minimal systemic side effect observed when used topically as the mouth rinse makes it possible to be used as an alternative to systemic therapy.

The findings of this study are in accordance with those of Weinstein R.L (2001) and Tramer M et al (2001)

Pain perception is dependent on the individual's pain threshold. It is a subjective measurement. Thus a split mouth was designed so that both effects of mouth rinse and tablet in controlling post operative pain could be perceived in the same patient thus decreasing the variability in the results obtained.

Steps to decrease post operative pain & discomfort

1. Surgical handling of tissues should be as atraumatic as possible.
2. Avoid tearing of flap,
3. Ensure complete coverage of the alveolar bone by suturing.
4. Prevent drying of the tissues during surgery.
5. Prolonged exposure of the surgical site and drying of the bone should be avoided
6. Overextension of periodontal pack in to the soft tissue should be avoided.

These steps ensure that only no or mild post operative pain and discomfort might be felt. Thus we can avoid using systemically administered analgesics and instead replace them with the analgesic mouth rinses.

Other uses of diclofenac sodium mouth rinse include

pain arising due to pharyngitis, mucositis, orthodontic treatment and also wearing dentures.

Further studies with larger samples along with supportive biochemical analysis of prostaglandins are necessary to support the results obtained in this study.

Summary and conclusion

This study was designed to evaluate the effectiveness of the diclofenac (0.074%) mouth rinse over the systemically administered diclofenac (50mg) in controlling pain after periodontal flap surgery.

A split mouth study was designed. Ten patients required to undergo periodontal flap surgery in at least 2 quadrants involving at least 3 posterior teeth were included. Each time the patient had to record the level of pain after periodontal surgery using a visual analogue scale twice a day for 4 days.

Results were analyzed statistically by univariate analysis of variance.

The pain perceived was highest on the 1st day after flap surgery

There was no statistically significant difference in the post operative pain perceived by the patients in between groups I and II on all days.

The mouth rinse was judged to be pleasant and acceptable in taste.

It can thus be concluded that the mouth rinse was as effective as the systemically administered tablet in the control of postoperative pain after a periodontal flap surgery.

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Research

Golden proportion and Indian faces

* Anupama, ** K. Chandrasekharan Nair, *** Jaykar Shetty

Beautiful faces have ideal facial proportions. Generally accepted ideal proportion is the golden proportion ie. either 1:1.618 or 0.618 : 1. To create esthetically pleasing prosthesis and restorations, several authors have suggested the use of geometric or mathematic proportions that would provide harmony between dentition and the face. Indian film world is blessed with many attractive faces but they were not subjected to scrutiny using the norms of golden proportion.

The purpose of the present study was to find out whether golden proportion existed in relation to Indian faces which are generally accepted as beautiful.

Methodology

Pictures of ideal face, ideal smile and faces of Indian film stars were selected. Selection was made based on the popularity in Bangalore (Fig 1 – 8). The following measurements were made to determine the presence of

golden proportion:(Fig 9-10)

- distance from forehead to chin vs distance from forehead to nose
- width of lips vs width of lateral borders of nose
- ratio of width of different maxillary anterior teeth
- presence of buccal corridor and symmetry
- coincidence of facial and dental midline
- presence of smile curve
- outer canthus of the eye and chin should maintain a relationship of equilateral triangle

Results and conclusions

Table 1 shows the comparison between different samples based on selected parameters. Sample 1 to 4 showed proportionality of faces and which resulted in beauty. Sample 5 to 7 did not show proportionality. Facial beauty has a definite link with golden proportion. It is established with the present study.



Fig. 1 Sample 1a.- ideal faces



Fig. 2 Sample 1b – ideal smile



Fig. 3 Sample 2



Fig. 4 Sample 3



Fig. 5 Sample 4



Fig. 6 Sample 5



Fig. 7 Sample 6

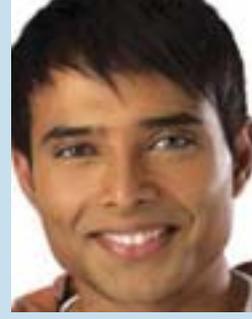


Fig. 8 Sample 7

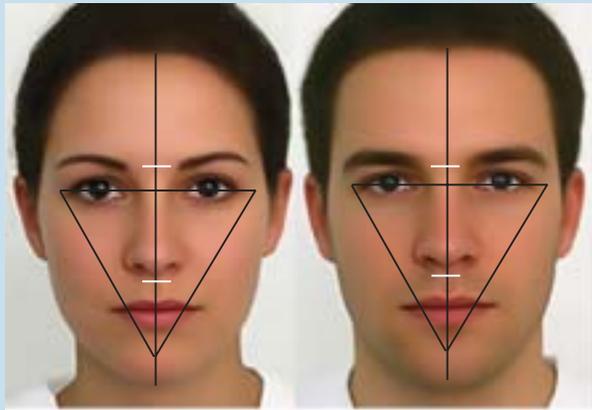


Fig. 9 Symmetry of face, division of face into thirds and the equilateral triangle used to determine the proportionality of faces

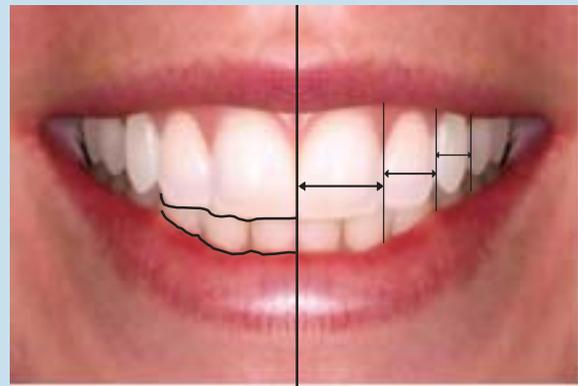


Fig. 10 symmetry of dental arch, golden proportion of anterior teeth, smile curve and buccal corridor area.

Table I : Comparison between different samples based on selected parameters.

Parameters	Sample 1(a) / 1(b)	Sample 2	Sample 3	Sample 4	Sample 5	Sample 6	Sample 7
Distance from forehead to chin vs distance from forehead to nose	1.6	1.66	1.55	1.59	2.4	1.54	1.75
Width of lips vs width of lateral borders of nose	1.58	1.61	1.5	1.5	2.	1.75	1.42
Ratio of width of different maxillary anterior teeth	1.59	1.5	1.62	1.66	1.25	1.23	1.5
Presence of buccal corridor and symmetry	Present	Present	Present	Present	Not Present	Not Present	Not Present
Coincidence of facial and dental midline	Present	Present	Present	Present	Not Present	Not Present	Not Present
Presence of smile curve	Present	Present	Present	Present	Not Present	Not Present	Not Present
Outer canthus of the eye and chin should maintain a relationship of equilateral triangle	Equilateral triangle is formed	Equilateral triangle is not formed	Equilateral triangle is not formed	Equilateral triangle is not formed			

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Latest Trends in Dentistry

Innovations in impression techniques & materials

* Rajeev Chitguppi

The key to contemporary restorative dentistry is the fabrication of healthy, maintainable, aesthetic, and functional prostheses. The quest for innovations and improvisation in all the key areas of restorative dentistry and implant prosthodontics has been on for long and it includes even the impression techniques and materials. Impression techniques in Implantology can be broadly classified into Traditional techniques and Newer generation digital impression techniques. This article attempts to bring the latest developments in impression techniques as well as materials.

1. Traditional techniques and materials

In implantology, various traditional implant impression techniques, such as the splint, pick-up, and transfer techniques, have been introduced, and some techniques may be more accurate than others. Also, clinically, the materials used and some other factors such as the angulation or depth of implants, may affect the accuracy of the implant impressions.

A review was recently performed on the accuracy of implant impressions by Department of Prosthodontics, School of Dentistry, Louisiana State University, USA (The accuracy of implant impressions: Lee H, So JS, Hochstedler JL, Ercoli C. J Prosthet Dent. 2008 Oct;100(4):285-91.). Polyether and Vinyl polysiloxane, the two traditionally popular materials for long, were considered in this review. Along with the conclusions drawn (not covered in this article) on impression techniques, some conclusions were drawn on these two impression materials.

Eleven studies were included in the review that compared the accuracy of polyether and vinyl polysiloxane (VPS), and 10 of 11 studies reported no difference between the two materials. Hence, both Polyether and VPS are the recommended materials for the implant impressions.

a. VPS materials (Eg. Aquasil ultra of Dentsply) have been popular due to their availability in various viscosities, colors, flavors, and setting times. These materials are consistently predictable and work well in a range of clinical situations. Improvements in their flow characteristics and more hydrophilic-like properties have made them the impression materials of choice for many dentists.

b. Polyether impression materials (Eg. Impregum of 3M ESPE) have been considered to be more hydrophilic in nature than VPS materials, thus making them ideal for the most challenging of clinical situations where tissue management is considered to be complicated as well as compromised.

Some **recent innovations** in the area of impression materials include - EXA'lence (by GC America) and Identium (introduced in the IDS, Cologne, 2009 by Kettenbach)

a. EXA'lence impression material (Fig 1) is claimed to be a hybrid silicone material that brings the best of Vinyl Polysiloxane and Polyether materials. It is a very novel concept and hardly any study has been published on it. The concept is called as VPES™ -



Fig. 1

Vinyl PolyEther Silicon.

The rationale for the development of the VPES material – EXA'lence™ – was simple and clear, to make a new level of distinctively predictable impressions – a reality. EXA'lence combines the best features of both VPS and PolyEther, bringing high tear strength, high hydrophilicity and excellent flow. These properties enable the material to go sub-gingivally and capture the finer details.

b. A new material - Vinylsiloxanether (Fig 2) - has been introduced recently (marketed as **Identium**)



Fig 2

and the first and the only clinical study published till now, (Enkling N, Bayer S, Jöhren P, Mericske-Stern R. Clin Implant Dent Relat Res. 2009 Sep 29.) shows that the overall results of the vinylsiloxanether material in terms of the patients', dentists', and dental technicians'

assessments, to be equivalent or superior to those of the polyether material.

Identium® was developed especially for the single step impression technique and combines the best of the two worlds: all advantages of conventional polyether materials paired with those of A-silicones. Based on the completely new material Vinylsiloxanether®, Identium® offers an excellent flowability that, in combination with a remarkable hydrophilicity (lowest achievable contact angle of less than 10° after 1 second) ensures an optimal inflow in a humid environment, even in the narrowest sulcus crevices. Its high elastic properties help Identium® retain its dimension accuracy and make it very easy to remove.

2. Digital impressions

Digital impressions are newer generation impression techniques that work in five steps.

- The area under consideration is captured with an optical device. The information is compiled in the CPU and displayed on the computer screen.
- After thorough analysis of the screen image, the dentist can either improve the preparation and/or add additional images.
- After approval, the image is digitally sent to the fabrication center, where the impression is analyzed by a technician. The technician will digitally trim the model (as well as the dies).
- This new and modified information is sent to create the actual physical model.
- The physical model is received by the laboratory of the dentist's choice for restoration fabrication.

Four popular digital impression systems available in the market are described below.

a. iTERO:CADENT (Fig 3)

iTero—powered by proprietary imaging technology—enables the dentist to take a digital scan of the patient's teeth and bite, make any necessary adjustments in real-time, and then transmit the file via a wireless Internet connection to a Cadent-partnering laboratory for further processing. From there the digital file is transmitted to Cadent where a model is milled. The physical model is then sent to the laboratory where a highly precise physical restoration is created.



Fig 3

b. LAVA CHAIRSIDE ORAL SCANNER C.O.S.: 3M ESPE (Fig 4)



Fig 4

Lava Chairside Oral Scanner C.O.S. digital impression system enables the motion capture of accurate and precise impressions, serving as the doctors entry point

for a range of digital workflows. It supports conventional processes such as PFM and CAD/CAM, including Lava Restorations. Featuring proprietary 3D in Motion technology, the Lava C.O.S. captures continuous 3D video images to create the digital impression. The Lava C.O.S. reportedly has elevated the process from merely taking pictures to capturing video.

c. CEREC BLUECAM AC : SIRONA DENTAL SYSTEMS (Fig 5)

Featuring advanced blue light LED technology, the CEREC Bluecam AC chairside digital impression-taking unit offers the ability to take half-arch digital impressions in 40 seconds and full-arch impressions in 2 minutes. The system also offers enhanced ease of use and precision and is being integrated with the company's existing as well as with future technologies. Scan data can be sent to participating laboratories through the CEREC Connect Web portal.



Fig 5

d. E4D DENTIST CHAIRSIDE CAD/CAM SYSTEM: SCHEIN (Fig 6)

The E4D system is an easy to use chairside CAD/CAM system that empowers the modern dentistry with same day crowns, inlays, onlays, and veneers and provides the dentist complete control of the final restoration.



Fig 6

Conclusion

Although impression making in restorative dentistry and implant prosthetics has been evolving rapidly, the most dramatic technological advancement in the area of impressions has been the introduction of digital impressions and they will continue to evolve to add greater precision and accuracy to take the clinical outcome to the most desirable levels.

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Case Report

Curcumin as a treatment modality in recurrent aphthous stomatitis

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Abstract

Recurrent Aphthous Stomatitis (RAS) is a common inflammatory condition affecting oral mucosa. In spite of extensive studies, there is no definite evidence of a causative factor for this disease.

Common treatment modalities of RAS are topical agents. It is seen that, though symptoms are reduced, measures to prevent recurrence have not been found out. In this context, attempt with an ayurvedic preparation of curcumin has proved to be beneficial. A study conducted in the Department of Oral Medicine and Radiology, Govt. Dental College, Trivandrum, which highlights the efficacy of curcumin

Introduction

Recurrent Aphthous Stomatitis (RAS) is an inflammatory condition affecting oral mucosa, the etiology of which is unknown. Approximately 20% of the population will suffer from RAS at sometime in their lives.¹ The disease mainly involves nonkeratinized mucosal surfaces and is characterized by single or multiple painful ulcers which recur periodically and heal spontaneously. The appearance of ulcers is preceded by a prodrome of localized burning or pain lasting 24-48 hours. The peak age of onset is between 10 and 19 years and may continue throughout life.²

RAS lesions have been classified into three groups- minor, major and herpetiform ulcers, based on the number of ulcers, size of the ulcer, its duration and severity.³

Many local and systemic factors are found to be associated with the condition. Evidences suggest that RAS has immunological, genetic and microbiological bases.⁴

Local factors such as trauma may initiate it in susceptible people. Recurrent Aphthous Stomatitis (RAS) is uncommon where mucosal Keratinization is present or in patients who smoke.⁵

Systemic disorders associated with the condition include⁶

	Disease	Clinical features
1.	Behcet syndrome ⁷ (Behcets Disease)	Recurring oral ulcers recurring genital ulcers, eye involvement including conjunctivitis retinitis and uveitis ⁸
2.	Celiac Disease ⁹ (Sprue, idiopathic Steatorrhea)	Intestinal disturbances including diarrhoea constipation and flatulence, nervous irritability, irregular brownish pigmentation, burning sensation of oral mucosa, small painful oral ulcers
3.	Cyclic neutropenia ⁷	Repetitive episodes of fever, mouth ulcers and infections attributable to recurrent severe neutropenia
4.	Inflammatory Bowel Disease ⁷ a. Ulcerative colitis b. Crohn's disease	Involves inflammation of colon characterized by rectal bleeding, diarrhoea, oral lesions manifested as recurrent aphthae of major and minor variety. Involves inflammation of all the layers of gut oral lesions including multiple small non healing aphthous ulcers with granulomatous inflammation
5.	MAGIC syndrome ¹⁰	Mouth and Genital ulcers with Inflamed Cartilage
6.	PFAPA SYNDROME ¹¹	Periodic Fever, Aphthous Stomatitis, Pharyngitis and cervical Adenitis
7.	Reiter's Diseases ¹²	Oral ulcers, uveitis, conjunctivitis and HLA B ₂₇ positive Arthritis
8.	Sweet's syndrome ¹¹	Fever, neutrophil leukocytosis, erythematous skin plaques or nodules and aphthae



Pre



Post

Aphthous ulcer –Soft Palate



Pre



Post

Aphthous ulcer - Tongue



Pre



Post

Aphthous ulcer – Lower Lip



1. Rhizome of Curcuma Longa
2. Curcumin oil

Management

There is no specific treatment for RAS. Treatment is aimed at reducing pain, speeding healing and reducing recurrence.¹³ The commonly used agents being

- Topical steroids-Betamethazone, baclomethasone, triamcilonone, acetonide, flucinonide, flumethasone pivate
- Mouthrinses- Chlorhexidine gluconate, Benzydamine hydrochloride, Carbenoxolone disodium
- Antibiotics- Topical tetracyclines and minocyclines¹⁴
- Immunomodulators⁵ - levamisole, Tansfer factor, Colchicines, gammaglobulin
- Other drugs-Dapsone, thalidomide, systemic zinc sulphate Monoamine oxidase inhibitors
- Amelexanox 5%-topical applications¹⁵
- Topical hyaluronic acid .2%¹⁶
- Topical penicillin G-50 mg penicillin G Potassium troches.¹⁷
- Protective adhesive dressings such as 2.octyl cyanoacrylate.¹³
- Other new modalities like low intensity ultrasound¹⁸ CO₂ laser¹⁹
- Chinese medicinal herbs along with levamisole²⁰

It is seen that though symptoms are reduced, measures to prevent recurrence of the illness have not been found out. In this context, attempts with an ayurvedic preparation of curcumin have been done, which seem to produce some beneficial effects.

Curcumin

Curcumin is a natural compound present in the rhizome of the Indian plant *Curcuma longa*, the common name of which is Turmeric. Turmeric belongs to the botanical family zingiberaceae, and is used as a spice, preservative and coloring agent.

Turmeric contains-proteins-6.3%, Carbohydrates-69.4%, Fats-5.1%, Minerals -3.5% and moisture 13.1%.²¹

The essential oil (5.8%) is obtained by steam distillation of rhizomes. In the crude extract of rhizomes, about 70-76% of curcumin is present and is responsible for the yellow color.

Curcumin is proved to have a wide spectrum of pharmacological actions like anti inflammatory, antibacterial, antiviral, anti tumor, antispasmodic and hepato protective ones.²² Recently, its utility in AIDS has been demonstrated.²² It has negligible side effects.

The anti-inflammatory activity of curcumin is due to inhibition of arachidonic acid metabolism,²² a dose of 100-200mg/kg/body weight exhibited good anti inflammatory action.²²

Materials and methods

The study was conducted in the Department of OMR, GDC, Trivandrum.

The curcumin oil used in the study was prepared

after referring ayurvedic literature²³ and packed in 100 ml, 200 ml, and 500 ml bottles.

The active ingredient of the preparation is 4-5% curcuminoids with curcumin as a major component.

1 ml of curcumin oil contains 50 mg of curcumin. So application of 5 ml of the oil gives a dosage of 250 mg daily.

Methodology

Patients diagnosed as having RAS without any systemic illness were selected. Twenty patients participated in the study. An informed consent was taken from them. The patients were divided equally into 2 groups of equal numbers. One group of patients were instructed to apply a conventional antiseptic gel topically twice a day.

The second group was instructed to hold 2.5 ml of curcumin oil mixed with 10 ml of milk in mouth for 1-2 minutes and spit, twice daily.

Each group was given log diaries and instructed to record the details of ulcers -the number of ulcers, intensity of pain, the period of healing and frequency of recurrence. Pain was assessed using Visual Analogue Scale (VAS)

Results

Reports showed that in patients who used conventional antiseptic gel, the lesion healed only after the period of time as in previous attacks. They experienced no early reduction in pain or frequency of recurrence.

The ten patients who used curcumin oil reported that ulcers started healing earlier than in previous attacks; there was also early reduction in pain. A follow up for one year has shown no recurrence in these patients.

Discussion

The study focuses on the therapeutic effects of curcumin in RAS. Turmeric has been used in the Indian traditional medicine for centuries. Its anti-inflammatory and wound healing activities are demonstrated by the rapid healing of the ulcers. The conventional antiseptic gel proved to be a failure in reducing recurrence, but curcumin could produce a remarkable reduction in recurrence. Whatever be the etiologic factor, curcumin should have produced the inhibition of a group of enzymes which control the arachidonic acid metabolism in body thus preventing inflammation of the mucosa. Its antioxidant properties should also be considered in ensuring a cure for the lesion.

Conclusion

The study gives us hope of using curcumin oil as an efficient therapeutic agent in RAS. Further studies are needed for confirming the efficacy of the compound. We can thus obtain relief from RAS by a medicine "most available in our country."

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Case Report

An unusual presentation of talon cusp

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Abstract

The term talon cusp refers to a relatively rare dental anomaly in which an accessory cusp like structure projects from the cingulum area or cemento-enamel junction. The condition can occur in either maxillary or mandibular anterior teeth in both primary and permanent dentitions. Some synonyms for talon cusp are dens evaginatus, interstitial cusps, tuberculated tooth, odontome of the axial core type, evaginated odontoma, enamel pearl, supernumerary cusps etc. These developmental anomalies cause clinical problems including unsightly dental appearance, occlusal interference, displacement of the affected tooth, attrition, periodontal problems, irritation of tongue, loss of space and malocclusion. This report describes a rare case of talon shaped cusp projecting from the labial and lingual surface of a maxillary permanent central incisor.

Introduction

Talon cusp is an uncommon dental developmental anomaly. The talon cusp is composed of normal enamel, dentin with a varying degree of pulp tissue. Talon cusp shows a predilection for the maxilla over the mandible.¹ The maxillary lateral incisors are the most commonly affected (67%), followed by central incisor (24%) and canine (9%). In the majority of cases the talon cusp is originated from the lingual surface of the tooth and very rare cases have been reported documenting talon cusps on the labial surface of the teeth and talon cusps both on the labial and lingual surface of the same tooth.² The prevalence of talon cusp varies considerably among population, ranging from 0.06% to 7.7%.^{3,4}

The etiology of talon cusp is not well understood, but appears to have both genetic and environmental components.^{3,5} Similar to other abnormalities of tooth shape, talon cusp originates during the morphodifferentiation stage of tooth development. It may occur as a result of outward folding of epithelial cells and transient focal hyperplasia of the peripheral cells of mesenchymal dental papilla. Identical talon cusps have been documented in twins suggesting a genetic influence.⁶

Case report

A 13 year old healthy girl presented to Govt. Dental College, Calicut, with a complaint of pain in the region of maxillary anterior teeth. The medical and dental histories were noncontributory.

On intraoral examination, an enamel projection was observed on the maxillary right central incisor which extended from the cingulum upto the incisal edge and

also to the labial surface of the tooth. The tooth appeared to X shaped when viewed occlusally (Fig 1). She has poor oral hygiene and generalized marginal gingival inflammation. The talon cusps neither irritated the tongue during speech and mastication nor interfered with occlusion. However, the esthetic appearance of the tooth was poor because of the talon cusp and its abnormally large size. No other member of the family was affected by similar dental anomalies. Dental caries was observed in the taloned cusp and there was pain on percussion. Periapical radiograph shows a radioopaque structure superimposed on the image of the affected crown. Periapical radiolucency was also noted (Fig 2).

Discussion

The anomaly was first reported by Mitchel et al in 1892 and the term talon cusp was given by Mellor and Ripa in 1970, due to its resemblance to an eagle's talon; but most reports have been published in the last 30 years.^{3,6} The prevalence of talon cusp in the permanent dentition is low and varies from 1% to 8%.² Males have a higher incidence than females.⁹ Talon cusps are more frequently found in permanent (77%) than primary dentition (23%).² They may occur unilaterally or bilaterally. Talon cusp associated with some somatic abnormalities such as Mohr's, Rubenstein Taybi and Sturge-Weber syndrome have been reported.^{4,5,6}

Talon cusps vary in size, shape and site of origin. Due to this variation, and in order to have a diagnostic criteria, it has been classified into 3 types by Hattab et al.^{3,7,8} Type1: talon – refers to a morphologically well-delineated additional cusp that prominently projects from the palatal (or facial) surface of a primary or



Fig1. Intraoral occlusal view of talon cusp showing a X shaped appearance

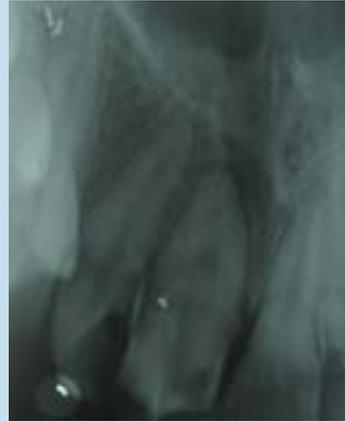


Fig2. Periapical radiograph showing a radioopaque structure superimposed on the image of the affected tooth with periapical radiolucency.



Fig 3. Occlusal view of cast showing an X-shaped appearance on 11.

permanent anterior tooth and extends at least half the distance from the cemento-enamel junction to the incisal edge. Type 2: Semi talon – refers to an additional cusp of a millimeter or more extending less than half the distance from the cemento-enamel junction to the incisal edge. Type 3: trace talon – an enlarged or prominent cingula and their variations, i.e. conical, bifid or tubercle-like. This case is a type 1 talon and there are no associated syndromes.

Although talon cusp is a rare finding, it has clinical significance because these teeth often possess deep grooves in the areas where the cusp like prominence is located, predisposing the patient to caries. Furthermore, the talons often contain extensions of pulp tissues similar to pulp horns. Radiographically the length of extension may be unclear because it may be superimposed over the main pulp chamber.¹ The prognosis of teeth with talon cusp depends on the time of diagnosis. If it is diagnosed early, the accessory cusp may be progressively removed with polishing diamond bur every two months. The abraded area should be treated with fluoride varnish. At the last appointment, to avoid post operative sensitivity, this area should be covered with resin composite. This procedure can prevent premature contact and reduce the risk of caries.^{2,5,9} The present case was diagnosed late, when there was already caries and pulp involvement and the tooth has been recommended for endodontic treatment.

The taloned cusp presented both labial and lingual talons with a X-shaped appearance when viewed occlusally, is an extremely rare occurrence, which has been reported only twice previously in the literature.^{1,9}

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Cleidocranial dysplasia - Report of two cases

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Abstract

Cleidocranial dysplasia is congenital disorder which is characterized by the generalized dysplasia of the osseous and dental tissues leading to the defect in skull, clavicles, long bones and teeth. The diagnosis of the disorder is mainly clinical and radiographic in nature. Patients usually present with a complaint of retention of multiple deciduous teeth, delayed exfoliation of deciduous teeth and delayed eruption of permanent teeth. We report 2 cases of Cleidocranial dysplasia with clinical and radiographic findings with a brief review of literature.

Introduction

The syndrome was first described by Marie and Sinton in 1898, as a rare developmental condition in which the leading features were aplasia of the clavicles, exaggerated development of the transverse diameter of the cranium, delayed closure of the fontanelles, and disorders of the jaws and dentition.¹

Since 1897, over 700 cases of cleidocranial dysplasia have been reported in the literature.^{2,3} Cleidocranial dysplasia is a skeletal disorder caused by both dominant and recessive patterns of inheritance with variable expressivity. The disorder was originally thought to involve bones of intramembranous origin only, namely the bones of the skull, clavicles and flat bones, hence the term, "cleidocranial." later it was known that bones of endochondral ossification are also affected and it is a generalized disorder of many skeletal structures.⁴

Case 1

A 25 year-old male reported to department of Oral Medicine and Radiology (A.B Shetty Memorial Institute of Dental Sciences, Mangalore) with a chief complaint of multiple missing teeth since birth. According to patient only 3 of his deciduous teeth were exfoliated and very few permanent teeth had erupted. Family History revealed that the patient, was the eldest of two brothers and one sister. None of the siblings and neither of the parents were affected. there was no history of consanguineous marriage in the family. His past medical history and dental was non- contributory.

On general examination, the patient was short, being 158 cm in height and weighing 55 kg. Hands and feet were of normal proportion to body and no deformity of fingers and toes were noticed, however bowing of legs was noticed with flat foot. Patient was able to approximate his shoulders in front of his chest (Fig. 2).

Head and neck examination revealed brachycephalic head (Cephalic index - 84.2) with prominent frontal and parietal eminences and flattening of the forehead and

the cranial vault. The sagittal suture appeared to be sunken and a depression was felt in the region of the anterior fontanelles. Examination of face revealed hypertelorism (Canthal index -44.1) with a broad nose and depressed nasal bridge. Hypoplasia of the mid malar region was also noticed (Fig. 1).

Intraorally, high arched palate was noticed along with multiple missing teeth and multiple retained deciduous and supernumerary teeth (Fig. 3).

Based on the clinical examination, chest X ray, panoramic view, Posteroanterior (PA) skull views were taken. Chest X ray revealed the bilateral hypoplastic clavicle with narrow angulated ribs (Fig. 4). PA skull view revealed open anterior fontanelles with open sagittal and coronal suture (Fig. 5). Lateral skull view revealed open lambdoid suture and wormian bones (Fig. 6). Panoramic view (Fig. 7) revealed multiple impacted permanent (20 in no) and supernumerary teeth (20 in no).

Both the clinical and radiographic findings were suggestive of cleidocranial dysplasia. Treatment rendered to the patient involved the restoration of decayed teeth, extraction of the root stumps and prosthetic rehabilitation

Case 2

A 21-year-old female patient reported with a chief complaint of spacing and mobility of teeth since childhood. She had three siblings but none of them had similar dental complaints.

On general examination patient was cooperative with no signs of mental retardation. Skeletal growth and development were retarded. She had short stature. Hands and feet were short and broad, with broader greater toe and long second toe. Head was hyper brachycephalic (cephalic index - 93.4) with frontal and parietal bossing. Examination of face revealed hypertelorism with prominent chin, short and broad nose and depressed nasal bridge. Malar hypoplasia was also noticed. The most striking feature was the hypermobility of shoulders. Intraoral examination

Case 1



Fig. 1 Hypertelorism with broad nose, depressed nasal bridge and mid malar hypoplasia



Fig. 2 Approximation of shoulder in front of chest.



Fig. 3 Intraoral photograph showing multiple missing teeth and retained deciduous teeth



Fig. 4 Chest X-ray showing bilateral hypoplastic clavicle with narrow angulated ribs



Fig. 5 PA skull view showing open anterior fontanelles with open sagittal and coronal suture



Fig. 6 Lateral skull view showing open lambdoid suture and wormian bones



Fig. 7 Panoramic view showing multiple unerupted permanent and supernumerary teeth

revealed multiple retained deciduous and multiple missing teeth and grade 3 mobility of 36, 37, 46, 47.

A radiological examination regarding dental and osseous malformations was carried out. Panoramic radiograph showed multiple impacted permanent teeth and supernumerary teeth in both maxilla and mandibular arch. Lateral and PA cephalometric radiographs revealed open sagittal suture, lambdoid suture and wormian bones. Later, chest x-ray was made which revealed hypoplastic clavicle bilaterally.

Depending on the clinical picture and radiographic findings, diagnosis of Cleidocranial dysplasia was made.

Discussion

Cleidocranial dysplasia also known as cleidocranial dysostosis, mutational dysostosis, Sheuthauer – marie sainton syndromes.⁶

It is a rare condition that is often inherited from a parent in an autosomal dominant manner. Boys and girls stand an equal chance of getting affected, but as many as 40% of the cases appear to represent spontaneous mutation. Several chromosomal abnormalities have been reported to be associated with this syndrome, including rearrangement of long arm of chromosome 8 (8q22) and the long arm of chromosome 6. Mutations in the core binding factor alpha – 1 (CBFA-1) gene, located on chromosome 6p21, have been shown to cause Cleidocranial dysplasia. This gene normally guides osteoblastic differentiation and appropriate bone formation. CBFA-1 also known as RUNX2 - Runt

related transcription factor 2 genes, is expressed specifically in chondrocyte and osteoblast progenitors, as well as mature osteoblast.⁷

Bone defects chiefly involve the clavicles and skull, although other bones such as vertebral column, pelvis and long bones may also be affected. In about 10% of the cases, the clavicles are absent, either unilaterally or bilaterally. More often clavicles show varying degrees of hypoplasia and malformation. Muscles associated with clavicles may be underdeveloped. The neck appears long, the shoulder appears narrow and show marked drooping. The hypoplasia or absence of clavicles leads to hypermobility of patient's shoulder and in some cases the patient may even approximate the shoulder in front of the chest. The patients tend to be of short stature and have large head with pronounced frontal and parietal bossing. Ocular hypertelorism and broad base of nose with a depressed nasal bridge is commonly seen. Maxilla is underdeveloped with illformed paranasal sinuses. On skull radiograph, sutures and fontanels may show delayed closure or may remain open. Many wormian bones may also be seen.

Intraorally patient may present with narrow high arched palate, increased prevalence of cleft palate, retention cysts, enamel hypoplasia. Prolonged retention of deciduous teeth and delay or complete failure of eruption of permanent teeth are characteristic features.

Panoramic radiograph may reveal multiple unerupted permanent and which may present with distorted crown and root shapes supernumerary teeth. The number of

Case 2



Fig. 1 Facial photograph illustrates broad nose and frontal bossing.



Fig. 2 Intraoral photograph illustrates multiple retained deciduous teeth



Fig. 3 Photograph illustrates hypermobility of shoulders.

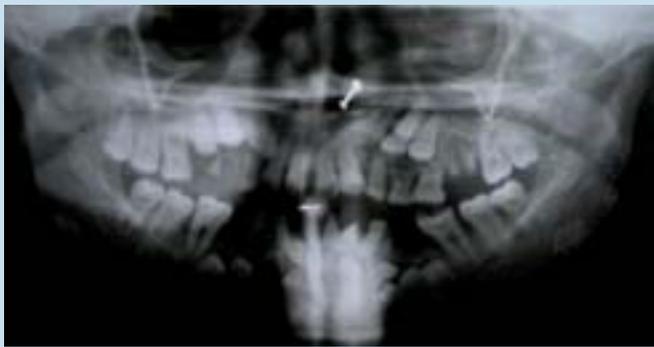


Fig. 4 Panoramic radiograph showed multiple impacted permanent teeth and supernumerary teeth in both maxilla and mandibular arch.

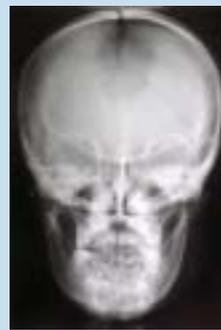


Fig. 5 Posteroanterior cephalograph illustrated open sagittal suture



Fig. 6 Lateral skull radiograph showed open lambdoid suture with wormian bones.

such teeth may even cross 60. In our case, panoramic radiograph showed 40 unerupted teeth in case report 1.

Mandible may often show coarse trabeculation with increased area of density, narrow ascending rami, and slender pointed coronoid process. The maxilla often is associated with a thin zygomatic arch and small or absent maxillary sinuses.^{5,6}

Rushton reported that there is absence or paucity of cellular cementum on the roots of the permanent teeth with no increased thickening of primary acellular cementum.

Differential diagnosis of cleidocranial dysplasia may include Maroteaux Lamy syndrome or pycnodysostosis but is differentiated by the presence of dwarfism, dense and fragile bones and partial agenesis of terminal phalanges in the latter.⁶

Treatment is usually supportive with no treatment of underlying disorder. Management is basically through a multidisciplinary approach planned by a dental, pediatric, orthopedic and genetic counselling team. Dental treatment involves a interdisciplinary approach involving orthodontist, maxillofacial surgeon and prosthodontist.

Conclusion

Although present at birth, most cases are diagnosed through incidental findings by physicians, treating

patients for unrelated conditions. In that case an oral physician may be the one to diagnose this condition and in the implementation of a therapeutic multidisciplinary planning, aiming the improvement in the life quality of the patients.

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Case Report

Fibrous dysplasia

* Faredha K.K., ** Prasad T., *** Vishnu Mohan

Abstract

Fibrous dysplasia is a non hereditary skeletal developmental anomaly of the bone forming mesenchyme; which is characterized by an expansile lesion of fibro-osseous tissue. The first clinical sign of the disease is a painless swelling or bulging of the jaws. It is of greater concern to the dentist because of the frequency with which the jaws are affected. Usually fibrous dysplasia affects people in their childhood or teens. Males are commonly affected than females. A 35 year old female who reported with a painless swelling in the right maxillary region, was managed by a hemi-maxillectomy followed by prosthodontic intervention. Fibrous dysplasia of the extra-cranial skeleton is a relatively common bone lesion. The involvement of the facial bone is much rarer & constitute a problem in diagnosis & management since the facial bones are so essential to the proper function & cosmetic appearance of the patient.

Introduction

Fibrous dysplasia is a skeletal developmental anomaly of the bone forming mesenchyme that manifest as defect in the osteoblastic differentiation & maturation. Monostotic fibrous dysplasia of the maxilla is the most common site of involvement in the facial bones & accounts for approximately 70% of those with facial involvement. The most common symptom observed with the lesion is a slow growing swelling, which is usually painless even though the lesion might be large enough to cause marked asymmetry of the face. The medullary bone is replaced by fibrous tissue which appears radiolucent on radiographs, with the classically described ground glass appearance. The exact etiology of fibrous dysplasia is unknown. It is usually caused by a mutation in the GNAS 1 gene [Guanine nucleotide binding protein, alpha stimulating activity polypeptide]. Differential diagnosis include Pindborg's tumour, giant cell tumour, hyperparathyroidism, fibrous cortical defect & non ossifying fibroma.

Case report

A 35 year old female reported to the department of Oral & Maxillofacial Surgery, Azeezia College Of Dental Sciences & Research with the presenting complaint of facial asymmetry. She had a painless swelling on the right side of the face since 10 years. She had no paraesthesia and no evidence of cranial nerve involvement.

To excise the lesion a hemi-maxillectomy was performed and access was achieved through Weber Fergusson incision. For obtaining better cosmetic results an incision was placed along the philtral ridges & then offsetting the incision at the vermilion border. The incision was turned laterally at the base of the columella, then around the alar base & along the side of the nose to within 2 mm of the medial canthus. Intraorally the incision was continued down through the gingival margin. It was connected with a horizontal incision at the depth of the labiobuccal vestibule, extending back to the maxillary tuberosity. From here the incision turns medially across the posterior edge of the hard palate.

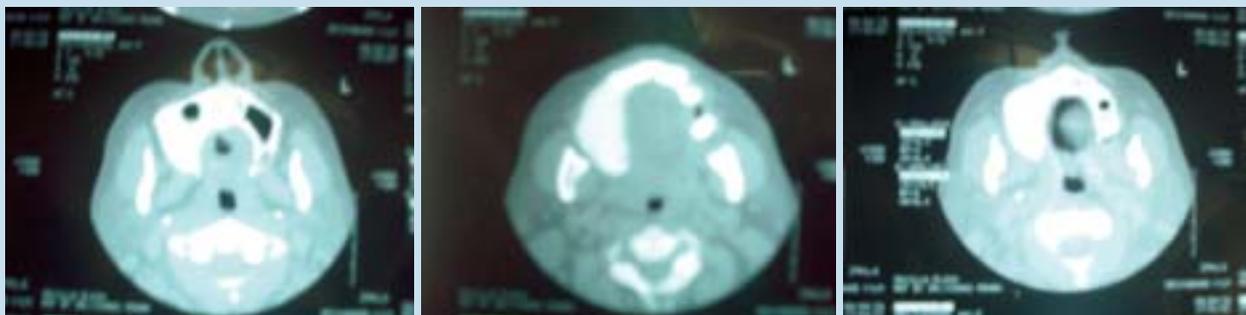


Fig. 1-3 Pre-operative axial CT scans showing the lesion on the right maxilla



Fig. 4 Weber Fergusson Incision



Fig. 5 Showing the lesion



Fig. 8 After Closure



Fig. 6 & 7 Defect after the Maxillectomy



Fig. 9 Excised specimen

The incision was then carried to the bone. The cheek flap was then reflected back to the tuberosity. The central incisor on the right side was extracted & the gingival & palatal mucosa were elevated back to the midline. The incision extending around the nose was then deepened into the nasal cavity. The palatal bone was then divided near the midline with a bur. The basal bone was then separated from the frontal process of the maxilla below the infraorbital foramen. The bone cut was extended across the maxilla into the zygoma sparing the zygomatic buttress to restore cheek fullness as the tumour does not extend into the height of buttress. Pterygoid osteotomy was used to do pterygoid dysfunction.

The entire specimen was removed by severing the remaining attachments with a large curved scissors placed behind the maxilla. The surgical obturator, which was pre-fabricated was placed to seal the defect. The obturator is fixed to the remaining teeth by means of interdental wiring. The main cheek flap was then turned back and closed in layers.

Discussion

Fibrous dysplasia of maxilla is a relatively rare tumor but presents a difficult cosmetic problem in treatment. When the tumor is large, a lip-splitting Weber-Fergusson incision is necessary to gain adequate exposure and complete extirpation is essential to prevent recurrence.

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Case Report

Maxillary second molar with two palatal roots: A report of 2 cases

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Abstract

The possibility of two palatal roots with separate apical foramina in maxillary second molar is small. However, it must be taken into consideration during endodontic treatment.

In this article two cases of maxillary second molar with two palatal roots are reported.

Introduction

Complete treatment of the entire root canal system is of paramount importance for the success of root canal treatment. So is the knowledge of the clinician of the dental anatomy.

Maxillary second molars show a single root canal in the palatal root with studies showing low incidence of two palatal root canals. Al Shalati et al¹, Green² and Vertucci³ found maxillary second molar with two palatal roots in their study.

A retrospective study by Peikoff M.D.⁴ on six variants of second molar has shown incidence of 1.4% of separate roots and separate root canals.

This case report describes the management of a maxillary second molar with two palatal roots having distinct apical foramina.

Case 1

A 56 year old male reported to the Department of Conservative Dentistry, Government Dental College, Trivandrum with the chief complaint of pain in relation to upper right side second last tooth while taking hot and cold food which persisted for few minutes since two weeks.

Oral examination revealed caries in relation to the distal aspect of upper right second molar. On cold testing, there was a painful response persisting for few minutes. Intraoral periapical radiograph showed radiolucency on distal aspect of 17 encroaching pulp chamber and extending into the root with two palatal roots and narrow canals (figure 1). A diagnosis of irreversible pulpitis was made and root canal treatment of the involved tooth was planned.

Rubber dam isolation was done followed by access cavity preparation. Working length was measured using radiographic technique (figure 2). Cleaning and shaping was done with crown down approach using ProTaper instruments. Master cone radiograph was taken (figure 3) and obturation was done with cold lateral compaction

technique. The access cavity was sealed with amalgam (figure 4).

Case 2

A 21 year old male patient reported to the Department of Conservative Dentistry & Endodontics, Trivandrum, with chief complaint of a cavity in upper right side second last tooth. On examination upper right second molar was found to be carious. The tooth was non tender to percussion and non responsive to cold testing. The patient had a history of spontaneous pain in the same teeth 5 months before. Intraoral periapical radiograph showed radiolucency involving the pulp chamber and presence of two palatal roots. There was widening of lamina dura in relation to mesiopalatal root (figure 5). A diagnosis of chronic apical periodontitis was made and routine endodontic therapy was planned.

Rubber dam isolation was done followed by access cavity preparation. Working length was measured using radiographic technique (figure 6). Cleaning and shaping was done with crown down approach and obturation was done with cold lateral compaction technique. The access cavity was sealed with amalgam (figure 7).

Discussion

The variations of the morphology of the root canal systems according to the retrospective study of Peikoff M.D.⁴ are as follows (figure 8):

1. Three separate roots, mesiobuccal (MB), distobuccal (DB) and palatal (P), with one canal in each root.
2. Three separate roots with one canal in the DB and P, and two canals in the MB.
3. Similar to variant 1 except that the MB and DB roots join in the apical region resulting in one common apex. The MB and DB canals also join to form one common apical foramen. The palatal root is separate and has one canal.
4. Two separate roots, a buccal and a palatal, with one canal in each root.

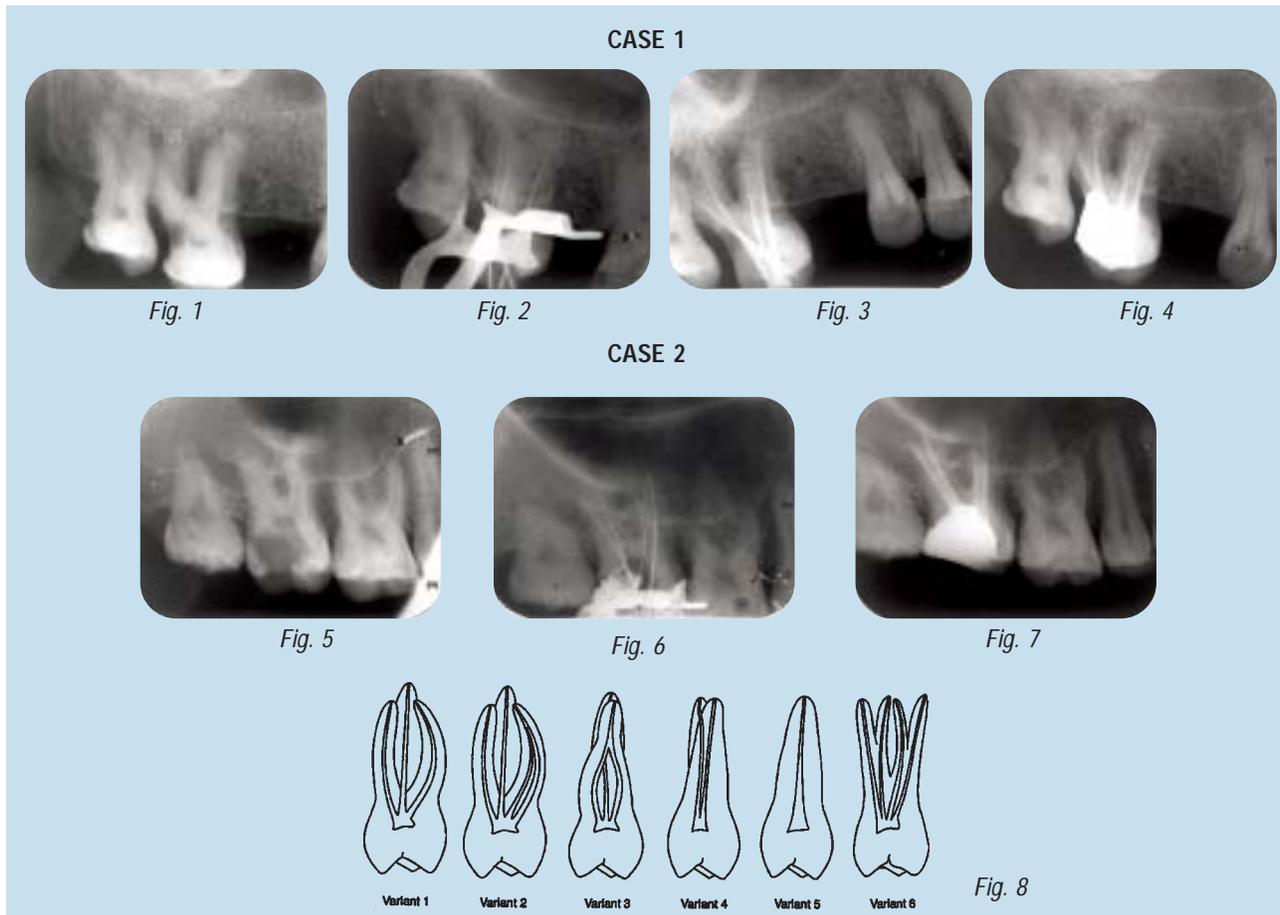


Table 1. Distribution and percentages of cases in the six categories of variants of root canal anatomy of the maxillary second molar according to Peikoff M. D⁴.

	Variants						Total
	1	2	3	4	5	6	
Number	296	118	47	36	16	7	520
Percentage	56.9%	22.7%	9.0%	6.9%	3.1%	1.4%	100%

5. One conically shaped root with a confluence of all canals into one main canal system.

6. Four separate roots with an MB, DB and the unusual palatal (MP) and a distopalatal (DP). Each root has a single canal with the possible exception of the MB which could have two canals as in variant 2.

Figure (8) showing the variations of the morphology of the root canal system of maxillary second molar.

Variant 1, the so-called standard morphology, was the most frequently occurring type in their sample at 56.9%. Variants 2, 3, 4 and 5 occurred at the rates of 22.7, 9, 6.9 and 3.1%, respectively. The least frequently occurring variant in was variant 6, which represented 1.4% (Table 1).

The root canal system of each tooth in human dentition has certain commonly recurring characteristics as well as numerous atypical ones that can be roadmap

to successful endodontics. Therefore, knowledge of many potential anatomic variations may become a deciding factor in the successful treatment outcome.

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Case Report

Rehabilitation of completely edentulous maxillary arch with implant supported fixed prosthesis

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Abstract

The conventional prosthetic treatment for replacement of missing tooth can be greatly enhanced by implant dentistry. Careful planning to combine surgical, restorative and dental technical parameter into one overall concept is essential for successful implant therapy. This article presents a case of rehabilitation of completely edentulous maxillary arch with implant supported fixed prosthesis. Rehabilitation using implant supported fixed prosthesis results in accurately fitted, esthetic and functionally efficient prosthesis.

Introduction

The conventional prosthetic treatment for replacement of missing tooth can be greatly enhanced by implant dentistry. Dental implants are used with the target of improving the stability of a prosthesis. Careful planning to combine surgical, restorative and dental technical parameter into one overall concept is essential for successful implant therapy.¹ The implant supported fixed prosthesis is a treatment option for edentulous patient in the following situations – sufficient bone in the second premolar position to house a 10 mm implant.² If patient exhibits adequate facial muscle tonus, which does not require support from the facial flange of a denture and if the lips does not descend below the cervical line of anterior teeth.³ This article presents a case of rehabilitation of completely edentulous maxillary arch with implant supported fixed prosthesis.

Case report

A 55 year old male patient reported to the OPD of Azeezia College of dental sciences & research who wanted replacement of upper edentulous arch. Dental history revealed that his maxillary arch was edentulous since 2 months. Intra oral examination revealed maxillary edentulous ridge of medium size, mucosa was uninfamed and healthy in nature. For evaluating bone quality and quantity panoramic radiograph (fig 1) and computed tomography scan (fig 2) were performed. The treatment plan included placement of 6 endosseous implants and fabrication of implant – supported fixed ceramometal prosthesis to rehabilitate the maxilla.

Under local anesthesia, mucoperiosteal flap was reflected and with the help of upper complete denture as surgical stent, 6 endosseous (MIS- SEVEN) implants were placed bilaterally in central incisor, canine and 2nd premolar area (fig 3) with demineralized freezed dried

grafts in the posterior areas.

The cover screws were secured over the implant after evaluation of primary implant stability (fig 4). After 6 months of uneventful healing and radiographic evaluation, the 2nd stage surgery was designed punch incisions were made to expose the cover screws. Healing caps placed. One Week later, healing screws were removed and Impression copings were attached to the implant bodies (fig 5) and final impressions were taken. The final abutment was cemented onto the abutments using implant cement (implacem) (fig. 6). The patient was recalled after 1 week, 6 month,& 1 year. Clinically it shows healthy gingival free from any inflammation and radiographically well osseointegrated.

Discussion

Several factors affect the strategic selection of implant size & position to restore a completely edentulous maxillary arch. In general, 2 implant bodies should be more than 3mm apart. Tarun et al have observed that the horizontal dimension of a vertical defect next to an implant measures almost 1.5 mm. as, such if the implant is closer than this to an adjacent implant, a vertical angular defect may result in horizontal bone loss between the implants.⁴ This bone loss in turn may favour the proliferation of anaerobic bacteria in the sulcular environment, or the tissue may shrink and compromise the interdental/implant soft tissue contours in this highly esthetic areas.

A review of literature tends to show that full maxillary fixed implant-supported prosthesis are fabricated on an average of six standard – diameter implants with posterior and anterior cantilevers. To compensate for poor local conditions, a greater number of implants can be planned to create a greater A-P spread, hence the need for sinus graft & premaxilla



Fig. 1 Pre-operative OPG

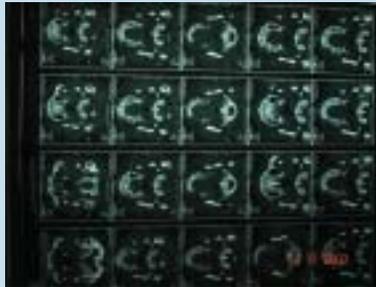


Fig. 2 Computed tomography scan



Fig. 3 Implant site 14, 13, 11, 21, 23, 24



Fig. 4 Cover screws on implant



Fig. 5 Impression copings on implants



Fig. 6 Final restorations on implants

reconstruction.

Criteria for implant success⁴

- An individual unattached implant is immobile when tested clinically
- The radiograph does not demonstrate any evidence of perimplant radiolucency.
- Vertical bone loss is less than 0.2mm after the first year of service of the implant
- Individual implant performance is characterized by an absence of persistent or irreversible signs and symptoms such as pain, infections, neuropathies, paraesthesia or violation of the mandibular canal.

Advantages

- 1) Psychological (feels more like natural teeth)
- 2) Less food entrapment
- 3) Less maintenance (no attachments to change or adjust)
- 4) Longevity (last the life of implant)
- 5) Similar cost as completely implant supported over denture

Disadvantages

- 1) Complications may be more difficult to treat

2) Cannot remove the prosthesis at night to decrease nocturnal parafunction

3) Lack of labial flange support in the maxillary prosthesis may affect facial esthetics

4) Hygiene may be more difficult.

Conclusion

Rehabilitation using implant supported fixed prosthesis results in accurately fitted, esthetic and functionally efficient prosthesis. The fixed restoration requires less repair and maintenance. It also has psychological advantage.

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Case Report

Metastatic nasopharyngeal carcinoma presented as a gingival over growth

* Angel Fenol

Abstract

Gingival overgrowth is a relatively common occurrence. This paper discusses a gingival overgrowth at the mandibular premolar area, which was the metastasis of nasopharyngeal carcinoma. The histopathology shows moderately differentiated carcinoma that was similar in appearance to the carcinoma of the pharynx.

This paper discusses the importance of viewing with suspicion any growth of the gingiva and the importance of biopsy of any lesion that cannot be correlated to infection, drugs or hormonal imbalance.

Gingival overgrowth is a relatively common occurrence as a result of irritation, infection, drugs, hormonal imbalance etc. This paper discusses a gingival overgrowth at the mandibular premolar area, which was the metastasis of nasopharyngeal carcinoma.

and the importance of viewing with suspicion any growths of the gingiva. It also highlights the importance of biopsy of any lesions that cannot be correlated to infection, drugs or hormonal imbalance. Numerous cases of malignant metastasis occurring as isolated cases¹⁻⁶ and as a series of cases⁷⁻⁹ have been reported.

Nasopharyngeal carcinoma is a cancer that occurs in the nasopharynx that is located behind the nose and above the back of the throat. It is more frequently found in Asia and northern Africa. Nasopharyngeal carcinoma is difficult to detect early because it is difficult to examine and symptoms of nasopharyngeal carcinoma mimic other common conditions like nasal congestion, ear infection, headache, bloody discharge from the nose, double vision, face and neck pain. Metastatic nasopharyngeal carcinoma has a variety of clinical presentations and the clinician is unsuspecting of metastatic malignancy due to its similarity to lesions like pyogenic granuloma, chronic periodontal diseases and apical periodontitis.¹⁰

Case report

A 33 year old female reported to the Department with complaints of enlargement of the interdental papilla at 34, 35 region. The lesion was 3x2 cm in size, texture was slightly rough and the consistency firm. The surface was slightly reddish. There was only mild bleeding on probing which can be given a score of 2 according to the classification of gingivitis according to Loe and Sillness. The lesion involved the interdental papilla and a slight enlargement of the attached gingiva was also observed. She had a history of nasopharyngeal carcinoma 15 years back for which she had undergone radiation treatment. She was now symptom free.

The other diagnostic possibilities were considered like plaque induced gingival enlargement, fibroma and

pyogenic granuloma.

An excisional biopsy was done and histopathological examination showed moderately differentiated carcinoma. With this histopathological diagnosis no further dental intervention was considered appropriate and the patient was referred to the Dept. of Oncology for further investigation. A similar case in which metastasis of nasopharyngeal carcinoma to the gingiva had been reported¹¹

Discussion

Metastatic disease in the oral cavity is relatively uncommon comprising only about 1% of malignant neoplasms. These lesions have a clinical picture similar to that of inflammatory conditions. A metastatic deposit in the bone will also present as radiolucency and is very similar to an inflammatory periodontal or periapical inflammatory disease as the prime diagnostic choice.

Soft tissue involvement whether due to metastatic neoplasm breaking out of bone or metastasis to the soft tissue it self will present as an exophytic lesion. Such lesions are friable, relatively painless and bleed easily upon provocation. These are typical features of common reactive hyperplastic conditions like pyogenic granuloma. A metastatic deposition in the jaw may produce bone destruction which will be seen as radiolucency in the jaw and it would be associated with dentition in most cases.¹⁰

The clinical picture of this lesion mimicked a chronic gingival inflammation in its appearance due to its appearance. Intra oral periapical radiograph did not reveal any bone involvement.

An incisional biopsy was done and the histopathology of the gingival enlargement showed it was a moderately differentiated carcinoma. The similarity of the nasopharyngeal lesion to the gingival lesion let us to conclude that the gingival enlargement is indeed a metastasis of a recurrent nasopharyngeal carcinoma.

Any enlargement of the gingiva should be critically evaluated and all possibilities ruled out before reaching

Fig. 1
Infiltrated with
moderately
differentiated
squamous cell
carcinoma

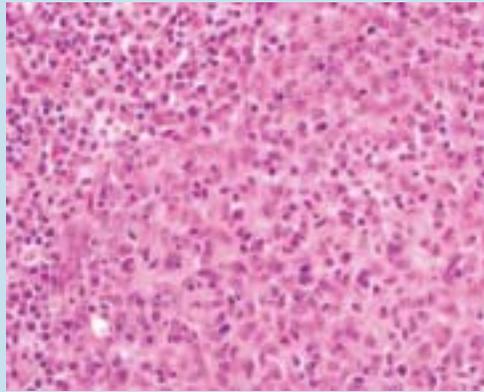


Fig. 2
Enlargement in
relation to 34, 35
regions



a diagnosis. Biopsy should be done on all lesions that does not have an immediate co relation to inflammatory conditions or those enlargements that does not regress after the initial phase of therapy.

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Information

Computer Guided Implant Surgery

* Eldo Koshy

Abstract

The conventional practice of implant site preparation and implant placement is carried out freehand after treatment planning based on interpretation from a two-dimensional IOPA (Intraoral periapical radiograph) or

OPG (Orthopantomograph) and by a wise clinical judgment. Much is left to guessing till the actual surgical appointment where we may be greeted by surprises related to soft tissue thickness, bone volume, bone density, proximity to anatomic structures etc.

Computer guided implant surgery is a CAD-CAM (Computer aided designing – Computer aided milling) solution to avoid such surprises. Here a virtual surgery based on a CT scan and a surgical template made in accordance to it guides the depth, diameter and orientation of the implant. The surgery may be done flapless and requires minimum time.

A clinical case of Computer Guided Implant surgery is reported here. Also details regarding radiographic stent preparation, scanning, treatment planning etc is provided. This is the first Computer Guided Implant Surgery performed in Kerala.

Introduction

Dental implants have become the most successful and predictable method of replacing single, multiple or complete set of teeth. We make a treatment plan from the information gained from the regular methods of history taking, intra oral examination, study casts, an OPG / an IPOA radiograph. A lot more rely on clinical judgment at the time of the implant surgery. Many times we come across situations where only when we expose bone we realize that bone is deficient to place implants. While preparing the osteotomy site, we may experience that the osteotomy drill traverses a different path than that we had originally planned. Precise placement and patient safety cannot be assured with the conventional implant placement and planning methods.

Computed Tomography (CT) scans help the dentist to analyze the skeletal architecture of the patient prior to implantation three-dimensionally. Recently, Cone Beam Scanners that produces less radiation than medical CT scanners have come into the field but transfer of the treatment plan precisely into the patient at surgery or restoration was not possible till the advent of computer guided implant surgery.

Computer guided implantology is a CAD-CAM solution for implant placement. It is a minimally invasive precise technique for implant placement which promises to revolutionize implant dentistry the way we practice today. With computer guided implant surgery, the dentist can perform a 'virtual surgery' in the absence of the

patient. Also the restoration can be planned, prepared and placed at the same appointment of the implant surgery.

The first step here is to make a stent containing the tooth/teeth to be replaced. It is converted into a radiographic guide that is readable by the scanner by incorporating gutta-percha markers into the stent. In an edentulous patient, the patient's complete denture or a duplicate of it may be marked with gutta-percha to be used as a radiographic guide.

The scan is called a dual scan. A CT scan with the radiographic guide placed intraorally and another scan of the radiographic guide alone is made. From these CT scans, the radiologist provides the dentist with a computer disc of Dicom images, which are loaded into the 3-D planning software program. The program joins the radiographic guide with the patient's bony anatomy using the gutta-percha markers that were incorporated into the radiographic guide. This allows the practitioner to precisely visualize 3-D images of the patient's bone and adjacent teeth, the planned tooth or teeth to be replaced, the important anatomical structures and the proximity to them, the bone density, width and height of available bone. The double scanning technique (of the radiographic guide and the patient) allows each element to be viewed together or separately.

The 3-D planning software made by Nobel Biocare is called Nobel Guide (Procera Software) and that by Materialise Dental is called the Simplant. This software contains a library of implants and abutments from which



Fig. 1 & 2 Residual alveolar ridge before implant surgery



Fig. 3a, b Radiographic stent



Fig. 4 The Maxillary surgical stent



Fig. 5 The maxillary surgical stent secured with Anchor Pins



Fig. 6 Intraoperatively (maxilla)



Fig. 7 Post surgical (maxilla)

the dentist may select the best one for the particular site. The dentist, using this software precisely plans the implant placement relative to the bone, soft tissue, and tooth / teeth to be replaced. The diameter, position and angulations of the implants is selected. A virtual surgery is carried out and the type of the prosthesis is planned. The need for bone grafting and the graft volume may be determined. Safety zone indicators and warning messages in the system ensure 100% safety avoiding collisions between implants, between implant and the nerve and between restorative spaces.

The planning information is e-mailed to the rapid prototyping centre in Sweden (for Nobel Biocare) or in Belgium (for SimPlant). Here the information is converted into a STL file and a stereo lithographic surgical template incorporating precision titanium drilling sleeves is fabricated. The sleeves incorporate all of the planning for implant trajectory and vertical

position and will guide the osteotomy drills precisely in the previously planned path.

In the implant placement appointment, the surgical template is secured to place with surgical index and anchor pins. Then using a series of specially designed burs and drilling guides which precisely fit into the sleeves of the surgical template, the implant site is prepared flapless through the soft tissue and the implant (or implants) is placed exactly in the position as planned in the 3-D software.

From this surgical template, the laboratory is able to fabricate an accurate stone model incorporating soft tissue anatomy and implant position using implant replicas. This model may be used to fabricate a temporary or definitive prosthesis for immediate placement at the implant insertion appointment.

The restoration may be placed immediately or at a later date according to the planning.



Fig. 8 The mandibular surgical stent



Fig. 9 The mandibular surgical stent secured with Anchor pins



Fig. 10 Intraoperatively (mandible)



Fig. 11 Post surgical (mandible)



Fig. 12 Post surgical OPG



Fig. 13 a, b Well healed ridges

Case report

This procedure was carried out on a 48 year old edentulous lady seeking fixed replacement of complete missing teeth. She has had no history of allergies, no diabetes and had well healed residual alveolar ridge with well keratinized alveolar mucosa (Fig1 &2).

A radiographic template of her maxilla and mandible was made with gutta percha filled into spaces created by a round bur into her existing dentures (Fig 3a, b). A dual scan was done making 0.5mm slices in a DICOM (Digital Imaging and Communication In Medicine) format. The information was read in a virtual implant

planner and the surgical sites, the diameter, length, angulation of implants, the location and depth of anchor pins were determined relative to the anatomical landmarks and the information sent to the rapid prototyping centre in Sweden (Nobel Biocare Implants were used in this case).

The maxillary surgical stent (Fig 4) with sleeves for implant placement was secured first on the edentulous maxilla with the horizontal anchor pins (Fig 5). Implant osteotomy (Fig 6) was carried out with a series of specialized drills and implants placed and cover screws secured effortlessly (Fig 7).

The same procedure was carried out in the mandible (Fig 8, 9, 10, 11), and an OPG revealing the precise placement of the implants at the virtually planned sites was made (Fig 12).

The surgical time was very minimum with no incision, no sutures, minimal bleeding and a faster uneventful healing obtained (Fig 13a, b).

Advantages

Planning before beginning!

1. Implant surgery planning in the absence of the patient
2. Identify anatomical structures and avoid uncertainties
3. Three dimensional assessment of jaws possible
4. Precise planning of the location, diameter and angulation of the implant (from a library of implants)
5. Flapless surgery
6. No fear of losing drill orientation
7. Less trauma to bone and mucosa
8. Less bleeding and faster healing
9. Less time for implant placement than by free hand drilling.
10. An accurate implant level model can be made before implant placement itself.
11. Plan the final restoration in the absence of the patient

Disadvantages

1. Since the drills in guided surgery are 10mm longer than standard drills, the patient must be able to open wide enough to accommodate the additional length.
2. Cost of the CT scan, software acquisition, planning time, laboratory costs for fabrication of radiographic guides and surgical template and immediate provisional restorations are additional expenses.
3. Some softwares are system specific.

Discussion

Rehabilitation by means of an implant typically requires two surgeries, one to place implants and another to expose them to restore with prosthesis. The patient is forced to wear a removable denture as a temporary measure for a half – year or more. Though the concept of immediate implant placement and restoration was proposed from the year 1997, it takes a full day of coordinated surgical, restorative and laboratory interaction to perform this immediate loading procedure. Moreover, the planning made from a 2-dimensional radiograph may not be accurate.

Computer Guided implant surgery guides the implant surgeon not only during implant placement but also from the treatment planning stages itself. The prosthesis and its outcome may also be planned before the actual surgery and the prosthesis may be delivered at the same surgical appointment thus avoiding a second stage surgery.

One of the limiting factors is its high cost. But more companies like VIP(ILS), SKYPLAN(BREDENT), EXPERTISE, ROBODENT, MED3D, CO-DIAGNOSTIX(IVS SOLUTIONS), IMPLANT 3D(SCHULTZ) are entering into the field promising a reduction in the cost of the procedure. The Navigated System for CT Guided Surgery is yet another innovation in this field.

Conclusion

Computer guided implant surgery takes dental implantology to a higher level. The image-guided system provides a valuable tool in implant dentistry and is superior to conventional implant surgery especially in difficult anatomical regions. With the precise 3-D planning and delivery possible with this system, the clinical outcome goes from a “clinically acceptable” to a more ‘accurate’ one!

Acknowledgement

I wish like to thank Dr. Nitish Surathu, MDS, for his support in this case.

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"Dental Home"- A New Concept for Primary Care

* Supriya S

The concept of the "Dental Home", is derived from the American Academy of Pediatrics, concept of the "Medical Home". The American Academy of Pediatrics states, the medical care of infants, children and adolescents ideally should be accessible, continuous, comprehensive, family centered, co-ordinated, compassionate and culturally effective.¹⁻⁴

Geographic barriers, personnel constraints, practice patterns and economic and social forces make the ideal "Medical Home" unobtainable for many children. Comprehensive health care of infants, children, and adolescents, wherever delivered should provide primary care and help to manage and facilitate essentially all aspects of pediatric care.⁵ Pediatric primary dental care needs to be delivered in a similar manner. The American Academy of Pediatric Dentistry (AAPD) supports the concept of a "dental home" for all infants, children, adolescents and persons with special health care needs.⁶

The dental home is inclusive of all aspects of oral health that result from the interaction of the patient, parents, non dental professionals and dental professionals.⁶ Establishment of the dental home is initiated by the identification and interaction of these individuals, resulting in a heightened awareness of all issues impacting the patient's oral health.⁶

The dental home should be expected to provide:

- An accurate risk assessment for dental diseases and conditions.
- An individualized preventive dental health program based on the risk assessment.
- Anticipatory guidance about growth and development issues (ie, teething, digit or pacifier habits, and feeding practices).
- A plan for emergency dental trauma.
- Information about proper nutrition and dietary practices.
- Information regarding proper care of the child's teeth and gingival tissues.
- Comprehensive dental care in accordance with accepted guidelines and periodicity schedules for pediatric dental health.
- Referrals to other dental specialists, such as endodontists, oral surgeons, orthodontists, and periodontists, when care cannot be provided directly within the dental home.

Risk Assessment

The dental home embraces the importance of early

intervention with optimal preventive strategies chosen based on the risk of the patient and would encourage the first dental visit by approximately six months of age. Practitioners can provide personalized preventive approaches for children based on their family histories, the oral examination and the risk factors identified. These risk factors include medical history, dietary habits, medication, fluoride availability and parental attitudes. Abundant literature supports the role of risk factors early in life as predictors of dental caries.^{7,8}

The Caries Risk Assessment Tool (provided and continually updated by the American Academy of Pediatric Dentistry and available at <http://www.aapd.org/members/referencemanual/pdfs/04-05/Caries%20Risk%20Assess.pdf>) can be used to determine the relative risk of caries of the patients. Risk assessment remains an emerging science, and, although empirical suggestions are available for children who are at greater risk, the observations of the practitioner still are valid. An individualized preventive program can be recommended for optimum protection of children in different risk categories within a good cost-benefit range.

Risk group for Dental Caries

- Children with special health care needs
- Children with mothers with a high caries rate
- Children with demonstrable caries, plaque, demineralization and or staining.
- Children who sleep with a bottle or breastfeed through out the night
- Later-order offspring
- Children in families of low socioeconomic status

Anticipatory Guidance

An important feature of a dental home is to provide anticipatory guidance to the parents so that they are aware of their children's growth and development, as well as possible risk factors that occur as children age. Anticipatory guidance provides a framework for practitioners and their staff members to periodically engage parents in conversations about the anticipated needs of the children.

Referring a child for an oral health examination by a dentist who provides care for infants and young children six month after the first tooth erupts or by twelve months of age establishes the child's dental home and provides an opportunity to implement preventive dental health habit that meet each child's unique needs and keep the child free

Ideal Characteristics and Practical Advantages of a Dental Home

<i>Characteristic</i>	<i>Description</i>	<i>Practical Advantages</i>
Accessible	-Care provided in the child's community -All insurance accepted and changes in coverage accommodated	-Source of care is close to home and accessible to Family. -Minimal hassle encountered with payment -Office ready for treatment in emergency situations. -Office is nonbiased in dealing with children with special health care needs, or CSHCN -Dentist knows community needs and resources (fluoride in water)
Family-Centered	-Recognition of the centeredness of the family	-Low parent/child anxiety improves care. -Care protocols are comfortable to family(behavior management). -Appropriate role of parents in home care is established
Continuous	-Same primary care providers from infancy through adolescence	-Appropriate recall intervals are based on child's needs. -Continuity of care is better owing to recall system vs. episodic care. -Coordination of complex dental treatment is possible(trumatic injury) -Liaison with medical providers for CSHCN is improved(congenital heart disease)
Comprehensive	-Health care available 24 hrs per day, seven days per week. -Preventive, primary, tertiary care provided	-Emergency access is ensured -Care manager and primary care dentist are in same place
Coordinated	-Families linked to support, education and community services -Information centralized	-Records centralized -School, workshop, therapy linkages established and known(cleft palate care)
Compassionate	-Expressed and demonstrated concern for child and family	-Dentist-child relationship is established -Family relationship is established -Children less anxious owing to familiarity
Culturally Competent	-Cultural background recognized, valued, respected	-Mechanism is established for communication for ongoing care. -Specialized resources are known and proven if needed -Staff may speak other languages and know dental terminology.

*JADA, Vol.133, January 2002

from dental or oral disease⁶. Parents may welcome professional support and anticipatory guidance to ensure that their children have healthy mouths at this age.

Child Identification

The American Academy of Pediatric Dentistry (AAPD), recognizing the role that dental records play in forensic identification, encourages dental practitioners and administrators of child identification programs to implement simple practices that can aid in identification of unknown infants, children, and adolescents. The AAPD recommends that parents establish a "dental home," where clinical data is gathered, stored, and updated routinely and can be made available to assist in identification of missing and/or abducted persons.⁹

Conclusion

To conclude, the dental home is an important concept for the dental profession to embrace. The dental home could increase opportunities for preventive oral health services for children that can reduce disease disparities.

The dental home is a concept that deserves support, further investigation and, in conjunction with the medical home, would provide the comprehensive health care to which all children are entitled.

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Information

Frequently asked questions on pandemic influenza A H1N1

How do people become infected with influenza A(H1N1)?

Outbreaks in humans are now occurring from human-to-human transmission. When infected people cough or sneeze, infected droplets get on their hands, drop onto surfaces, or are dispersed into the air. Another person can breathe in contaminated air, or touch infected hands or surfaces, and be exposed.

What are the signs and symptoms of infection?

Early signs of influenza A(H1N1) are flu-like, including fever, cough, headache, muscle and joint pain, sore throat and runny nose, and sometimes vomiting or diarrhoea. Like seasonal flu, swine flu may cause a worsening of underlying chronic medical conditions.

Is there any confirmation of transmission between pigs and humans at this point?

No.

How long someone with the flu infects someone else?

Infected people may be able to infect others beginning one day before symptoms develop and up to seven or more days after becoming sick.

What surfaces are most likely to be sources of contamination?

Droplets from a cough or sneeze of an infected person move through the air. Germs can be spread when a person touches something that is contaminated with germs and then touches his or her eyes, nose, or mouth.

How long can viruses live outside the body?

We know that some viruses and bacteria can live two hours or longer on surfaces like cafeteria tables, doorknobs, and desks. Frequent hand washing will help you reduce the chance of getting contamination from these common surfaces.

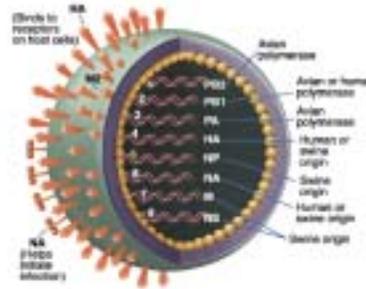
What can I do to protect myself from getting sick?

Currently available seasonal influenza vaccine does not protect against H1N1 flu. There are everyday actions that can help prevent the spread of germs that cause respiratory illnesses like influenza. Take these everyday steps to protect your health:

- Cover your nose and mouth with a tissue when you cough or sneeze. Throw the tissue in the trash after you use it.
- Wash your hands often with soap and water, especially after you cough or sneeze. Alcohol based hand cleaners are also effective.
- Avoid touching your eyes, nose or mouth. Germs spread this way.
- Try to avoid close contact with people having respiratory illness.
- If one gets sick with influenza, one must stay at home, away from work or school and limit contact with others to keep from infecting them. However, if one is having any respiratory distress, one should report to a nearby hospital.

What should I do to keep from getting the flu?

First and most important: Wash your hands frequently. Try to stay in good general health. Get plenty of sleep, be



physically active, manage your stress, drink plenty of fluids, and eat nutritious food. Avoid touching surfaces that may be contaminated with the flu virus. Avoid close contact with people having respiratory illness.

Are there medicines to treat swine flu?

Yes, oseltamivir is the recommended antiviral drug for the treatment and/or prevention of infection with the influenza A H1N1. If you get sick, antiviral drugs can make your illness milder and make you feel better faster. They may also prevent serious flu complications. For treatment, antiviral drugs work best if started soon after getting sick (within 2 days of symptoms). Government has adequate stock and the drug is made available to government hospitals at the time of outbreak and would be available to you free of cost. The drug is to be administered under supervision of clinicians.

What should I do if I get sick?

If you live in areas where influenza A H1N1 cases have been identified and become ill with influenza like symptoms eg, fever, body aches, runny nose, sore throat, nausea, or vomiting or diarrhoea, you may contact their healthcare provider, particularly if you are worried about your symptoms. Your healthcare provider will determine whether influenza testing or treatment is needed. If you are sick, you should stay home and avoid contact with other people as much as possible to keep from spreading your illness to others. If you become ill and experience any of the following warning signs, seek emergency medical care.

In children emergency warning signs that need urgent medical attention include:

- Fever
- Fast breathing or trouble breathing
- Bluish skin colour
- Not drinking enough fluids/eating food
- Not waking up or not interacting
- Being so irritable that the child does not want to be held

In adults, emergency warning signs that need urgent medical attention include:

- Difficulty in breathing or shortness of breath
- Pain or pressure in the chest or abdomen
- Sudden dizziness
- Confusion
- Severe or persistent vomiting

Can I get influenza A H1N1 from eating or preparing pork?

No, swine influenza viruses are not spread by food. Eating properly handled and cooked pork products is safe.

Research findings

* Bindu R. Nayar

New micro-images of strange, worm-like structures

ScienceDaily (July 28, 2009) — New, micro-images of strange, worm-like structures uncovered inside a dissected molar might have been held in ancient times as proof that gnawing tooth worms were the cause of tooth decay, a theory widely believed in many cultures before modern times.

The structures are not worms, but what they are is still in question.

Studies revealed cylindrical objects extending or 'growing' out of the natural pores or tubules of teeth. Inside a human tooth, more than 50,000 such tubules per square millimeter act as channels running from the nerve up through the tooth. They are associated with transporting hot or cold sensitivity to the tooth nerve.

Dentists' explanations vary on nature and origin of the structures. "they are made of bacteria, or minerals, or hyphal branches of yeast cells (*C. albicans*) which have infected the tooth structure, or perhaps they are a cellular process of the dentinal tubules. The aim of the Maryland study was to investigate the structures with scanning electron imagery and different specimen preparation techniques. The researchers' observations raised new questions in the controversy over nature of the strange structures. For example, they found two of the cylinder structures within a single tubule, a discovery that challenges the hypothesis that the structures are cellular extensions.

The tubules ranged from 2.6 to 3.5 micrometers in diameter and the worm-like structures were smaller in the tubules in which they appeared. The structures were as long as 9 micrometers, extending out of the tubule opening. Whereas the majority of the structures appear to be hollow and devoid of any content, a number of these structures appear to be solid. The majority of the structures have a diameter ranging from 1.5 to 1.9 micrometers. Some of the structures appeared to be solid. Other pictures revealed a comparatively thin, hollow structure emerging from a single dentinal tubule. Across the ages, both advanced civilizations and as far back as the Roman Empire and the Middle Ages believed in the tooth worm, with physicians prescribing various herbs, rinsings and fumigations.



Effect of beverages causing damages on teeth

ScienceDaily (Aug. 8, 2009) — Researchers have warned people to beware of the damage that acidic beverages have on teeth. Yet, for some, the damage and problems

associated with drinking sodas, citric juices or certain tea may have already begun to take effect. The question remains: What can be done to restore teeth already affected?

The acidic content of beverages, such as soda; lemon, grapefruit and orange juice; green and black tea; and revealed three steps to rehabilitate teeth that suffer from dental erosion as a result of the excessive consumption of these products. Those who are experiencing tooth erosion to first, identify the culprit source of erosion, possibly with the help of a dental professional. Then, the individual should determine and understand how this source affects the teeth in order to implement measures to control and prevent further damage. Lastly, the person should stop or reduce consumption of the suspected food or beverage



to the absolute minimum" Dental erosion, "is a demineralization process that affects hard dental tissues (such as enamel and dentin)." This process causes tooth structure to wear away due to the effects that acid has on teeth, which eventually leads to their breakdown. It can be triggered by consumption of carbonated beverages or citric juices with a low potential of

hydrogen (pH), which measures the acidity of a substance. Excessive consumption of the acidic beverages over a prolonged period of time may pose a risk factor for dental health.

Mercury released by Dental Amalgam fillings are not high enough to Cause Harm, FDA Finds

ScienceDaily (July 31, 2009) —Elemental mercury has been associated with adverse health effects at high exposures, the levels released by dental amalgam fillings are not high enough to cause harm in patients

The regulation classifies dental amalgam into Class II (moderate risk). By classifying a device into Class II, the FDA can impose special controls (in addition to general controls such as good manufacturing practices that apply to all medical devices regardless of risk) to provide reasonable assurance of the safety and effectiveness of the device. Today's regulation also reclassifies the mercury component of dental amalgam from Class I (low risk) to Class II (moderate risk). Over the past six years, the FDA has taken several steps to assure that the classification of dental amalgam is supported by strong science. In 2002, the agency issued a proposed rule to classify dental amalgam and identify any special controls necessary for its safe and effective use.

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Diagnose

Diagnose the following cases

*Nityasri V., **Anita Balan

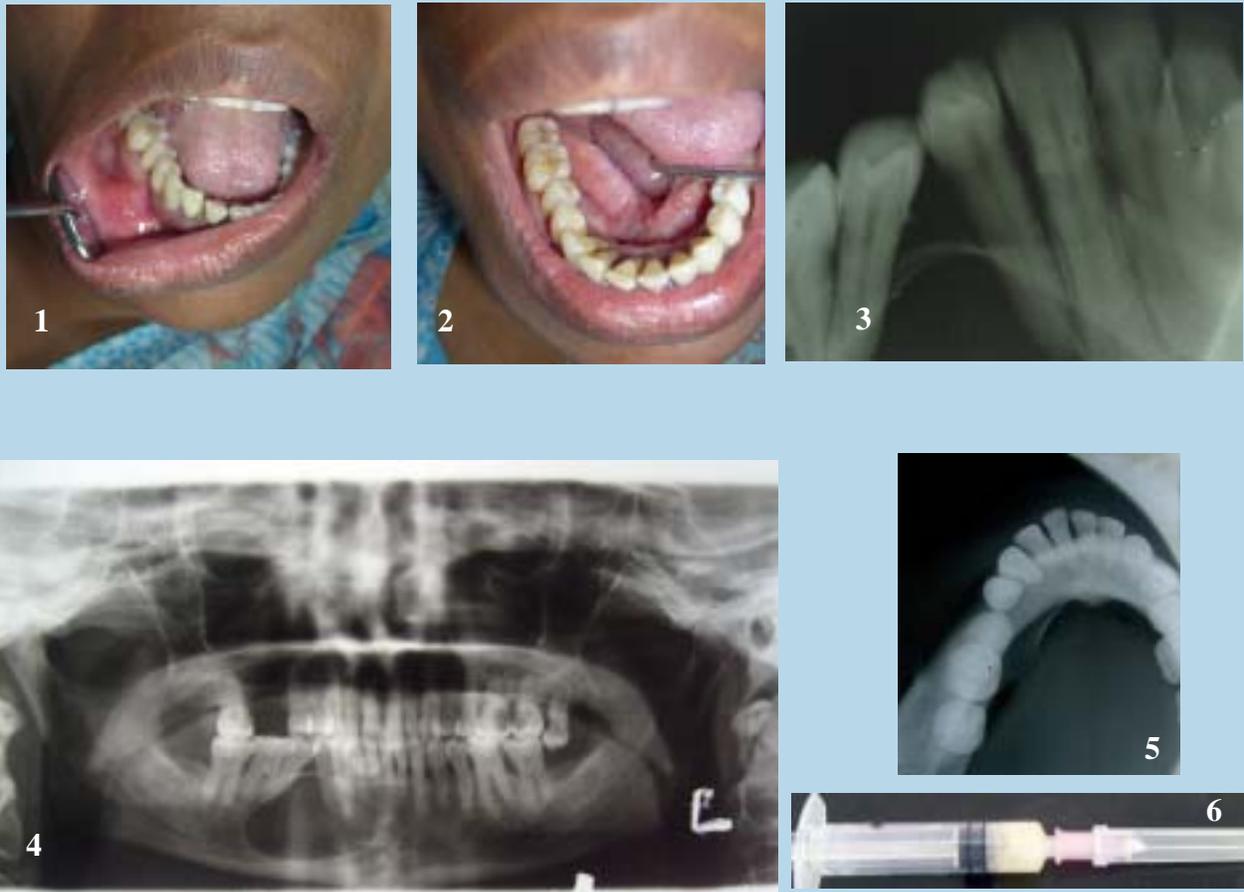


Fig 1 & 2 : intraoral photographs showing buccal and lingual aspects of the swelling., Fig:3 IOPA radiograph showing the Lesion with displacement of the teeth involved, Fig:4 Mandibular occlusal radiograph showing the expansion of lingual cortical plate, Fig 5: Panoramic radiograph showing the lesion. Fig 6: The aspirate.

A 43 year old female patient reported to the OPD ,Govt. Dental College Trivandrum with the complaint of a painless swelling in relation to lower right back teeth of 1 and a half years duration. Clinical examination revealed a swelling of size 3x4 cm in relation to 44 and 45, buccally and lingually, which was bony hard on palpation. Intra oral periapical radiograph and mandibular true occlusal radiograph were as shown above. Panoramic radiograph revealed a unilocular radiolucency with well defined borders involving the roots of 42-46 with mesial inclination of crown of 45 and distal inclination of crown of 46. On aspiration, the yield was a cheesy white viscous fluid. The most probable diagnosis is -

Kerato Cystic Odontogenic tumour (KCOT)
 KCOT earlier known as Odontogenic Keratocyst has been included under odontogenic tumours in WHO classification of odontogenic tumours (2005), as it is known to mimic neoplasia owing to its destructive and aggressive behaviour. Molecular studies have demonstrated high intrinsic growth potential and enzyme chemistry compatible to most tumours. Immunocytochemistry has also explained its similarity to dysplastic lesions thus justifying its new name.

ANSWER:

*PG student **Professor and Head, Department of Oral Medicine and Radiology, Govt. Dental College, Trivandrum

* Rani Mol P., ** Anita Balan

1. A lady in the last trimester of pregnancy reported with multiple episodes of bleeding from the oral cavity. On intraoral examination a growth on the palatal aspect of 13 region was noted which most probably will be



- a. Pyogenic granuloma
- b. Pregnancy tumor
- c. Spindle cell carcinoma
- d. Fibroepithelial polyp



2. The most appropriate clinical diagnosis will be

- a. Leukoplakia
- b. White sponge nevus
- c. Lichen planus
- d. Oral melanosis

3. The ulcer on the ventral aspect of tongue in infants is most probably

- a. Bednar's apthae
- b. Riga-fede disease
- c. Behcets syndrome
- d. Herpetic ulcers



4. Infinite clotting time and prothrombin time, and zero erythrocyte sedimentation rate is the dramatic feature of

- a. Macroglobulemia
- b. Cryoglobulemia
- c. Afibrinogenemia
- d. Parahemophilia



5. The typical malar rashes are characteristic of

- a. DLE
- b. Ptyriasis rosea
- c. Xeroderma pigmentosum
- d. Addison's disease

6. One way substance is

- a. Magnesium
- b. Iron
- c. Calcium
- d. Zinc

7. The clinical picture bluish translucent swelling in the floor of mouth which is characteristic of

- a. Lipoma
- b. Mucocele
- c. Ranula
- d. Dermoid cyst



8. An intra oral picture of a 5 yr old girl shows partial absence of teeth and typical shape of central incisors. Her hair and eyebrows were blond and sparse. She complained of intolerance to heat. The most probable diagnosis is

- a. Incontinentia pigmenti
- b. Hereditary ectodermal dysplasia
- c. Syphilis
- d. Radiotherapy during childhood

9. Pseudorhagades are seen in

- a. Hereditary ectodermal dysplasia
- b. Congenital syphilis
- c. Yaws
- d. Pinta



10. Excessive exuberant proliferation of chronically inflamed dental pulp tissue is

- a. Pyogenic granuloma
- b. Chronic hyperplastic pulpitis
- c. Infected pericoronal flap
- d. Hemangioma

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

Answers

*Postgraduate Student, **Professor & Head, Dept. Oral Medicine & Radiology, Govt. Dental College, Trivandrum.

Secretary's Report and Association News



Secretary's Message

My dear fellow members

This is the last issue of KDJ in my tenure as the Hon. Secretary IDA Kerala State. There were plenty of occasions for me to be happy and sad. These three years taught me many a good lessons in my life. The most important one I learned that how difficulties can be made into opportunities. We can't rate these by value of money. But looking back I am satisfied to see that at least I was able to track IDA without much of a trouble. I am expressing my deep sense of gratitude and love to our president Dr. KN Pratap Kumar for the care, love, affection and support given to me and to our association for the last one year. I extend my sincere gratitude and thanks to Dr. Oommen George & Dr. C.K Ashokan whom I was fortunate to work as secretary. My strength and courage are the members of our cabinet, all local branch presidents, secretaries and sub committee chairmen for the last three years of my office. My heartiest welcome and best wishes to those new leaders and office bearers to the IDA administration. I request all the members to participate in the 42nd Kerala State Dental conference hosted by IDA Kerala State Branch on 20, 21 & 22nd Nov 2009 at Calicut and be a part of this mega event to make this conference a grand success.

REPORT OF ACTIVITIES

4th Executive Committee Meeting

4th Executive Committee Meeting of IDA Kerala State held on 26th July 2009 at 10.30 am at KPM Regency, Press Club Road, Opp. Dt. Hospital, Palakkad.

KDJ

Hon. Editor Dr. K. Nandakumar presented the report. He requested the help of executive members to receive advertisements in KDJ. The cost per issue is Rs.1,20,000/-. The feed back from members is needed for attaining excellence. President requested to include a column for the same. Hon. treasurer Dr. Ravindrannair handed over the balance amount of the state share towards the journal to the Hon. Editor. The 3rd issue of the KDJ for the year 2008-09 was released by president Dr. KN Pratap Kumar.

CDE

IDA Kerala State conducted the 3rd CDE program on 09-08-09 at DD Retreat Thammanam, Kochi.

The 4th CDE program was conducted on 26-09-09 at Hotel Pagoda Resorts Alleppy hosted by IDA Allapuzha branch.

The 5th CDE program was conducted on 14-10-09 at IMA House Kaloor Cochin hosted by IDA Kochi..

Career Option 09

A proposal came from HO to conduct a career option seminar for student members of IDA Kerala State. IDA Kerala

State conducted this programme one at Mar Baselios Dental College Kothamangalam under IDA Malanadu Branch. The presence of HSG Dr. Ashok Dhoble, Past National President Dr. M.C Mohan and the faculty Dr. Rajeev Chittgupi graced the occasion. The students of Mar Baselios, Annoor and Amrita institute of Dental Sciences attended the programme. The other one was conducted at Trivandrum hosted by IDA Trivandrum Branch.

Principals' Meet

The summit was held on 6th Sept 09 at Hotel Malabar palace. The summit was called to order at 10.30 am by IDA Kerala state President Dr. K.N. Pratap Kumar, It was followed by a prayer..Dr. Antony Thomas, Hon. Secretary afforded a welcome to all the principals present. He welcomed all the various IDA office Bearer's- the President Dr KN Pratap Kumar, President elect Dr. Samuel K Ninan, IPP and DCI member Dr. C.K. Ashokan, Dr Shaji K Joseph, all the IDA officials and all the principals individually.

Dr. KN Pratap Kumar began with a Sanskrit verse: a clean first step augurs well. Professionals should take responsibility and not play the blame game. This meeting of the heads' of the colleges was an Orientation of college teacher's career attempt to forge common ground and has a platform to air different views. The inclusion of ethics/ moral education in the curriculum could be evolved. He wanted to evolve a standard way to deal with public issues. IDA needs to be introduced to students at the college level and will offer career guidance, in addition to all routine privileges. College Teachers' Orientation was a measure



IDA Kerala State 4th Exe. Meeting held on 26th July 2009 at KPM Regency Palakkad



IDA Kerala State Dental College Principal's Summit held on 6th September 2009 at Hotel Malabar Palace

that could be adapted in schools. He welcomed and thanked the attendees specially Dr. K. Nandakumar, the Program coordinator. Dr. Nandakumar broached on the possible role of IDA in the emerging scenario, and complimented the President/ Secretary for calling such a meeting. Dr. Samuel K Ninan saw this as an academicians' meet too- and stressed the role played by them in Continuing Education. Colleges nurture the scientific basis of Evidence based dentistry.

President Dr. K.N.Pratap Kumar summed up the discussions. Orientation of student, Teacher, Parent and management in regard to Dental Education and all its facets. IDA would initiate yearly meetings and also form committees of regional nature.

On the lines of IDA :

- South-Zone : Dr. K Nandakumar & Dr. Sobha Kuriakose
- Mid-Zone : Dr. Varghese Mani & Dr. Naik
- North-Zone : Dr. Ipe Varghese & Dr. PG Francis.

This high power committee would meet atleast twice in an year.

List of Principals/Representatives attended

- Dr. Ipe Varghese - GDC Calicut
- Dr. P Suresh Babu - Rep of GDC Thiruvananthapuram
- Dr. K. Nandakumar - Azeezia College of Dental Sciences & Research
- Dr. Varghese Mani - Mar Basellios Dental College, Kothamangalam
- Dr. Thomas Manjooran - Royal Dental College, Challiserry
- Dr. H. Shamasudheen - KMCT Calicut.
- Dr. B R Naik - Annoor Dental College
- Dr. P G Francis - MES Perinthalmanna
- Dr. M Gopinathan - PSM College of Dental Science
- Dr. M Harindranath - Mahe Institute of Dental Science
- Dr. P. S Thaha - PMS-Vattappara, Thiruvananthapuram
- Dr. C. Pradeep Kumar - Malabar Dental College
- Dr. M. Ram Manohar - EducareInstitute of Dental Science, Malappuram
- Dr. Shaji. K. Joseph, Dr. C. K. Ashokan - DCI Members



The 3rd issue of the KDJ was released by Dr. KN Pratap Kumar



Panel of Principals Meeting



Hon. Secretary General Dr. Ashok Dhoble and Rajeev Chitguppi are received by the Head office officials



Rajeev Chitguppi giving talk



Career Option 2009 held at Mar Baseliros Dental College



Meeting with the legend Kiran Bedi at World Dental Show

CDH

CDH and CDE conveners meet was organized by the CDH and CDE wing on 06-08-09 at DD Retreat, Kochi.

A new proposal to conduct an elocution competition for the High school students regarding tobacco abuse was under consideration.

DD Sports

IDA Kerala State Dental Sports Meet - DD Sports- "Monsoon Fiesta" was held on 09-08-09 at DD RetreatThammanam, Kochi.

Cultural Committee

The chairman of the committee Dr KN Thomas requested all branches to send the reports of the cultural activities done.

Flash 2009

As a part of presidential priorities it was decided to conduct a photography competition for IDA members. The theme of the competition is "Thanal".

42nd KSDC

Conference secretary Dr. Oommen George was invited to speak during the 4th state executive meeting. He requested all the local branch secretaries for more RCM registrations. A multimedia presentation regarding the conference was presented by the Org. Chairman Dr. V. Viswanath.

43rd KSDC

The conference Secretary Dr. CK Ashokan and org secretary Dr. Suresh PN were invited to brief about the proceedings. They said that the website will be launched soon and the venue will be VP international Convention centre Manjeri.

IDA HOPE

Secretary Dr. Nizaro Siyo said that 70 per cent of IDA members are HOPE members too. There are 108 new members. Twenty six members are yet to renew. There was a total of 13 cases pending and recently a case was won. Bye law for the society is under preparation. Dr. V. Viswanath the chairman of HOPE explained about the case sheet proposed to be issued by HOPE.

Management Committee Meeting

A meeting of the management committee of IDA HOPE was held on 06-08-09 at DD Retreat Cochin.

Presentation of Audited Accounts

Dr. Ravindran Nair, Hon treasurer presented the audited accounts for the year 2008-09.

DRS Registration

Regarding DRS registration secretary informed that the concession allowed is going to be terminated and the members have to pay Rs. 3000 as registration fee. The state office had a meeting with Health minister at Calicut and handed over a representation in this regard. Hon health Minister assured to take favorable action.

KDC

KDC president Dr. Mathew Joseph informed that regarding the status of the CDE accreditation the guide lines are under preparation and IDA will also be included in the panel.

Dr. Antony Thomas
Hon. Secretary, IDA Kerala State.

IDA TRIVANDRUM BRANCH

A Monthly Meeting of the branch was held on the 21st of August 2009 at the Hospitality Centre, Trivandrum Club. Dr. Rohini Nair our member was felicitated on being the first woman in Asia who has flown a Buckeye alone in Asia. The Meeting was followed by dinner.



The Kerala State CDE Programme "Interns at Crossroads" was hosted by IDA Trivandrum at Hotel Keys on the 19th of September 2009. There were 106 participants for the programme which was a grand success.

The programme was inaugurated by Kerala state IDA President Dr. Pratapkumar, in which Dr. Mukesh T., President, IDA Trivandrum Branch welcomed the gathering. Felicitations were delivered by Dr. K. Nandakumar, Principal, Azeezia Dental College, Dr. N.O. Varghese, Principal, GDC Tvm, Dr. Sony Thomas, Vice president IDA Kerala State. The faculty for the programme was



Consulting Periodontist and implantologist Dr. Rajeev Chitgupi. The CDE programme targeted interns. The lecture gave an idea about all the options available for a successful career in dentistry. It was an interactive lecture where the students were encouraged to express their views, share their concerns and get their doubts cleared.



IDA TELlicherry BRANCH

Installation ceremony of new office bearers of the branch for the year 2008-09 was held on Sunday 4th January 2009 at DERACT Beach, Tellicherry. Dr. Prathap Kumar, President IDA Kerala State was the Chief guest. Dr. Antony Thomas, Hon-Secretary Kerala State and Dr. M.C. Mohan Imm. Past. National President were the guests of honour. The meeting was held during the day time in a pleasant atmosphere. Members from North Malabar and Wynad branch were attended the function and they felicitated the function. After that we celebrated new year with cutting a cake. The installation is followed by variety of funny games, entertainment fellowship and lunch.

CDE PROGRAMME : Members from our branch attended the interbranch CDE organized by North Malabar branch on 18.1.2009 at Kannur. Faculty was Dr. C.V. Pradeep MDS and Topic of the programme is Post endodontic restoration.

Members attended the CDE Programme on 'Metal Free Restoration' on 4th April 2009. Dr. Aqeel Sajjad Reshamvala was the faculty. The programme is hosted by Dent Care Lab. We visited the Dent Care Lab at moovatupuza on the same day.



On 28th May 2009 we conducted a CDE Programme at DERACT Beach, Tellicherry. Dr. Sreekumar Nambiar was the faculty. He took classes on clinical aspects of dental materials in day today practices.

On 12th July 2009 we had a CDE Programme on Post endodontic Restoration. The faculty was Dr. George Jacob MDS.

On 2nd August 2009 there is another CDE Programme at Academic Hall, Mahe Institute of dental science. It was a joint CDE in association with North Malabar and Mahe Institute of dental science, Mahe. The topic of the programme is 'Defining Fixed Restorations'. The faculties were Dr. Anoop M Azad, Dr. Mathai Joseph K, Dr. Rajaram Naik and Dr. Sreedevi Geejai.

On 30th September 2009 we had a CDE Programme at DERACT Beach, Tellicherry. Dr. Ajoy Vijayan was the faculty and topic of the programme was 'Exodontia- Complication and Management'.

Dental checkup camp was conducted on 29th March 2009 in association with Ladies wing of IMA Tellicherry at Kuyyali Shazeedha Mandir, Tellicherry. Dr. Sujatha and Dr. E Sajeevan were attended the camp. About 150 patients were examined.

Dental checkup camp was conducted on 30th September 2009 at Valiya madavil school, Keezhanthimukku, Tellicherry. Dr. E Sajeevan attended the camp.

DENTIST DAY: Dentist day celebrated and during this we honoured Dr. MC Mohan, Past National President and Dr. Natarajan, Past President Tellicherry Branch. We also conducted a family get together on the same day at DERACT Beach, Tellicherry.

FAMILY TOUR We had a family trip to Munnar. We went around and visited various tourist spots like Rajamala, Mattupatty dam, High point and we had a lunch at Kundala Privets Golf Club.

IDA NORTH MALABAR BRANCH

MEGA CDE PROGRAMME:-

Fifth ACDE Programme:- The fifth Mega CDE programme of IDA-North Malabar 2008-09 was conducted on 12th July 2009 at Hotel Malabar Residency, Kannur. The topic of the CDE was "Oral Rehabilitation With Dental Implants". Dr Tatu Joy, Prof. Dept of OMR, Annoor Dental College, talked on the topic 'Radiological Preparatory steps in Implant Placing', Dr Sreekanth A Mallan, Prof. Dept of Prosthodontics, Annoor Dental College took the class on 'Surgical Implant Planning and Insertion' and 'Prosthodontic Steps for Super Structure'.

Sixth ACDE Programme:- The sixth Mega CDE programme was conducted on 2nd August 2009 at Academic Hall, Mahe Institute of Dental Sciences, Mahe. This programme was conducted jointly with IDA-Tellichery branch and Mahe Institute Dental Sciences. Dr M.C.Mohan Past National President IDA inaugurated the programme. Dr. Antony Thomas Hon, Secretary IDA-Kerala and Dr.O.V.Sanal CDE convenor IDA-Kerala were also present on the occasion. The topic of the CDE programme was "Defining Fixed Restorations".

Seventh ACDE Programme:- The Seventh Mega CDE Programme was conducted on 16th August 2009 at Hotel Malabar Residency, Kannur. The topic of the programme was "Children Are Not Miniature Adults". The first session was taken by Dr.P.M.Shenoy (senior consultant paediatrician, kannur) on the topic 'Paediatric Care -An Overview'. The next session was taken by Dr Shyam Bhat (Prof & HOD Dept. of Pedodontics, Yennapoya Dental College) on the topic 'Budding Smiles'.

CDE CLUB PROGRAMMES:-

Fifth CDE Club Programme:- The fifth CDE Club programme was conducted on 21-July-2009 at Hotel Malabar Residency, Kannur. The faculty was Dr.C.K.Ashokan, Prof & HOD Dept of Prosthodontics, Pariyaram Dental College and he took a class on "Predictable Implant Functioning And Aesthetics-How to Achieve in Clinical Practice?".



Sixth CDE Club Programme:- The sixth CDE Club programme was conducted on 24-August-2009 at Hotel Mascot Beach Resort, Kannur. Mr. George Abraham, National Marketing Manager, 3M ESPE was the faculty. The topic of the CDE programme was "LAVA- New All Ceramic Crown And Bridges".

Dens-Info Released :- We have released our second issue of our publication 'Dens-Info' for the year 2008-09 on 21-7-2009 along with Fifth CDE club programme. Past president Dr.K.V.Valsalan released the journal and handed over first copy to Dr.C.K.Ashokan, IPP, IDA Kerala.

ONAM-RAMZAN Celebration 2009:- We have conducted ONAM-RAMAZAN Celebration on 30th August 2009 at Hotel Malabar Residency, Kannur. Dr Antony Thomas, Hon-Secretary IDA-Kerala was the chief guest of the programme. We have arranged Ifthar party for the members. Members of our branch and their family members participated in entertainment programmes includes Comedy skit, Thiruvathira, Classical dance, Karaoke songs, Classical Songs, kids games etc....The entertainment programmes are followed by mouth watering Onam Sadhya.

IDA QUILON BRANCH

General Body Meeting : 3rd GB was held on 16th Aug. at Lions Hall, Kollam. President Dr. Kiran K.S. congratulated all those who have actively participated in the Free denture programme and urged that more members should come forward for such community activities. He requested all those who havn't, to join IMAGE at the earliest. The GB unanimously assured Dr. Shibu Rajagopal, that IDA Quilon will be with him for all his endeavors during his election process for the post of State Secretary.

Executive Committee Meetings: 8th EC was held at SSA Hall on 25th Aug. Activities for the following months were discussed. President stressed the role of each Ex. Memb. on membership growth & restraining some fellow colleagues from unethical practices.

9th EC was held on 13th Sept. at Rama Varma Club Hall. President advised Ex. Memb. to encourage all the members of IDA Quilon to register for IDA KCON 09 .



ONAM Celeb. : Almost all the members along with their families participated for the fabulous Onam celebrations at "Aquaserine" Paravoor on 20th Sept.. President Elect Dr. Samuel K Ninan graced the occasion with family. Games and other recreations followed with a grand 'sadya'.

CDH: Free denture programme "Prathyasa" was conducted were 52 individuals who were really in need benefited. Mr. Shajahan IAS, Dist. Collector graced the function. President thanked the 24 members who participated in the programme and Sec. Dr. Joseph Edward appreciated Dr. Anil Kumar G & Dr. Shibu Rajagopal for doing more than 8 dentures.

A treatment camp was conducted on 9th Aug. at Community Hall Sakthikulangara were more than 140 patients benefited. Dr. Biju Kumar, Dr. Santhosh Kumar, Dr. Srijesh & Dr. Neena directed the event.

A check-up camp and seminar was conducted on 13th Sep. at Kottiyam, were more than 380 patients benefited. Dr. Nisam, Dr. Anil Murali, Dr. Vinod, Dr. Pramod S Prasad & Dr. Padmakumar participated. Dr. Silvia's seminar on "Pan chewing among Females" was an eye opener for many. Dr. Nikhil was the student's co-ordinator.

CDE : 7th CDE was held on 2nd Aug. at Lion's Hall. Dr. Anil Rodrigues' class on "Child Management in Dental Office", was well appreciated.

8th CDE was on "Contemporary Orthodontics" by Dr. Deepu Mohandas.

FDI : 3 members of IDA Quilon, Dr. Joseph Edward, Dr. Jayanth Jayarajan & Dr. Milan Yogaraj participated in the FDI meet at Singapore. They shared their experiences of that grand event during the last meeting.

CENTRAL KERALA KOTTAYAM

5TH executive committee meeting was held on 28/6/2009 at hotel Orchid Regency Kottayam.

4th CDE and Hands On was conducted on 28/6/2009 at hotel Orchid Regency Kottayam. The CDE was on "Impression Materials and Techniques". There was a lecture followed by a hands on section on impression techniques using rubber base impression materials. Dr Anil Kumar HoD in Prosthodontics GDC Kottayam was the faculty. It was conducted as a state level cde

CDE : The 5th CDE of our branch was a short cde on 'Forensic Odontology' at Hotel Tirusingu Kuttikanam on 5th July. The speaker was Dr Eapen Thomas lecturer in Oral Pathology Pushpagiri dental college.

Journal Release : The second issue of our journal SMILE was released on 5/7/2009 by state president Dr Pratap Kumar by handing an issue to Dr Nandakumar in the presence of the editor Dr Robbin. The journal was well appreciated.

Family Get together: The 4th family get together was held on 5th July at hotel Thrisangu Kuttikanam. A magic show was held as entertainment. It was followed by lunch. Cultural programmes like drawing and clay moulding competitions were held for children.

CDE : The 6th cde of our branch was held on 'Biomechanics of lava metal free ceramic system' on 27th July at hotel Orchid Regency. The speaker was Dr Amish Patel.

Oral hygiene day : was observed on August 1 by conducting a dental awareness class and dental check up camp in Harijan Welfare school.

Intra branch shuttle tournament was held on 2nd August at Erattupeta rotary hall. Dr Linu M Ninan was the winner.

Free ORTHODONTIC treatment programme for children in orphanages and poor children's home was started by holding a press conference. IDA State president Dr Pratap Kumar, KDC president Dr Mthew Vayail, central kerala kottayam president Dr



Praveen Thiyil and secretary Dr Aby Jose took part in the press conference. The orphanages and poor homes in the specified areas were informed about the programme through the press release.

Independence day was observed on 15th August by flag hoisting in Snehadeepam juvenile home.

CDE: The 7th cde of our branch was conducted as an inter branch cde on 30th and 31st Aug. Day 1 was a lecture on Metal free ceramics and day 2 live demonstration and hands on. The faculty was Dr Arvind Shenoy.

Journal Release: The 3rd issue of our journal Smile was released by state president Dr Pratap Kumar by giving a copy to Dr Arvind Shenoy on 30th August.

IDA MALANADU BRANCH

EXECUTIVE MEETING: The IVth Executive meeting of IDA Malanadu Branch was on 30th July 8.00pm at Sreemoolam club-Muvattupuzha hosted by Dr.Ciju.A.Paulose, Dr.Byju.Paul.Kurian & Dr.Binoy Mathew.

CDE PROGRAM: The CDE Program of IDA Malanadu Branch was on 4th August, Tuesday at Amritha Hotel Mekkadambu. After the silent prayer Dr. Joby J.Parappuram welcomed all. Secretary Dr. Jaymon K. Alias presented the reports and was duly passed. In his Presidential address Dr. Jose Paul mentioned about the Dental Doctors Sports Meet and about the needs of rehabilitation of grossly destructed teeth. Dr. Giju George introduced the Faculty. Dr.Byju Paul Kurian took a detailed class and discussions about the rehabilitation of grossly mutilated Teeth. Then a momento was given to faculty by Dr. Mathew Paily. Dr.Tajas proposed the vote of thanks.

DENTAL DOCTORS SPORTS - 2009: The Dental Doctors Sports meet was on August- 9th at DD Retreat Indoor stadium Kochi. Dr.Jose Paul, Dr.Ciju.A.Paulose, Dr.Sunil Wilson, Dr.Tajas.S were participated for shuttle tournament. Dr.Sunil Wilson got Runnersup trophy for Table Tennis Tournament. Our Branch CDE-representatives, Hope Representatives & CDH Representatives attended the state level meetings of respective posts on the same day.

CAREER OPTIONS - 2009: Career options was conducted for graduates on September- 18th 10.00am at Mar Baselious Dental College Kothamangalam. Secretary Dr.Jaymon K.Alias introduced our Chief Guest. Programme was Inaugurated by our National Secretary HSG. Dr.Ashok Dhoble. Dr.Jayan Jacob introduced the faculty. Dr. Rajeev Chitguppi took a detailed class and discussion about the future of coming graduates. After the discussions Dr. K.N. Pratap Kumar - IDA Kerala State President, Dr. Antony Thomas - IDA Kerala State Secretary, Dr. Varghese Mani College Principal were given felicitations. IDA Malanadu

Branch momento was given to Dr.Ashok Dhoble by Dr. Alias Thomas. Dr. Pratap Kumar given ponnada to Dr. Ashok Dhoble. Dr. Jose Paul Proposed the vote of thanks.

CDE PROGRAM : The CDE Program of IDA Malanadu Branch was on 20/09/09, 3.30pm Sunday at Rotary Club, Perumbavoor. After the prayer song Dr. Eldho T. Paul welcomed all. Secretary Dr. Jaymon K. Alias presented the reports and was duly passed. In his presidential address Dr. Jose Paul mentioned about the need of Radiography in our profession. Dr. Babu Cherian introduced the faculty. Dr. Giju George took a detailed class and discussion about Importance of Digital Radiography in Dentistry. After the discussion Dr. Bino Thomas proposed the vote of thanks. Then the meeting is adjourned for our Onam celebration cum family meeting. The CDE Program is fully sponsored by the Colgate Palmolive India Ltd.

Hepatitis B vaccination Programme



Vaccination team

IDA KOCHI BRANCH

IDA Kochi celebrated the Independence Day with the special students of Shilpa School on the 15th of August 2009. We had our World Hepatitis day celebrations conducted in the same venue on the 1st of October 2009. The event manifested as a Parent orientation and dental examination program for the parents of these children. Colgate tooth brushes and paste combo kits were distributed to the participants. The Onam & Ramazan was held on the 19th of September 2009 at IMA House, Kaloor from 8pm to 11pm. It was indeed a celebration with cultural programs, recognizing accomplishments of our branch members with a GCDS project introduction and fellowship and dinner. Dr. Antony Thomas, Secretary IDA Kerala State was the chief guest. Ms. Archana Kavi and Ms. Ambika Rao were invited special guests for the program.

Member's children participated in various cultural programs especially in fancy dress, dances and songs. The release of the 3rd issue of the Journal BIDA was done by Dr. Alias Thomas and the first copy was handed over to the chief guest Dr. Antony Thomas.



Dr. V.A. Afzals outstanding IDA Member award was bagged by the Secretary Dr. Vinod Mathew and it was awarded during the ceremony by Ms. Archana Kavi.

September 27, 2009 marked the foundation stone-laying day of Greater Cochin Dental Society at the plot owned by GCDS near Mermaid Hotel of Vytilla, Cochin. The President, Dental Council of India Padmabushan Brigadier Dr. Anil Kohli laid the foundation stone at 7:30am and thereafter planted the sapling. Dr. K.N. Pratap Kumar, President IDA Kerala State, Dr. Antony Thomas, Secretary IDA Kerala State, Dr. Samuel K Ninan, President Elect IDA Kerala State, Dr. Jaibin George- Vice President IDA Kerala State along with Dr. Shaji K Joseph, Dental Council of India member presided over the ceremony.

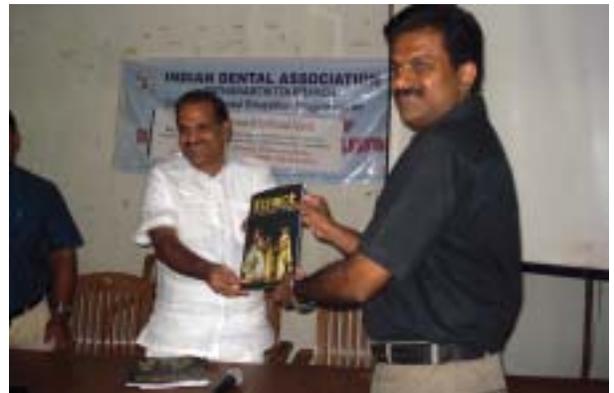
IDA PATHANAMTHITTA BRANCH

Three EXECUTIVE COMMITTEE MEETINGS were held on 15/07/2009, 14/08/2009 and 24/09/2009 at Govt. Guest House Pathanamthitta. The 10th executive has hosted by Dr. Muraleekrishnan M.

CDE REPORTS: Three CDEs (5th, 6th & 7th CDE) were conducted. 5th CDE was conducted at Govt Guest House, Pathanamthitta on the topic "Oral Disease in HIV Infection"; taken by Dr. Kurian M Mani MDS (Periodontics), Specialist, Medinath Zayed Hospital, Health Authority, Abu- Dhabi, UAE on 19/07/2009 which was attended by 31 members. The 6th CDE on the Topic: "SURGICAL MANAGEMENT OF THIRD MOLARS" was taken by Dr. Sini Varghese Mathew, MDS (Oral & Maxillofacial surgery), Al Azhar Dental College, Thodupuzha on 07/10/2009 between 7:00pm ~ 9:30pm at Govt Guest House Pathanamthitta attended by 30 members. The 7th CDE on the topic: "NON- SURGICAL RE-TREATMENT IN ROOT CANAL FAILURES" was taken by Dr. Feminath, MDS (Operative Dentistry), Ananthapuri Super Speciality Dental Clinic, Manjadimoodu, Trivandrum on 15/10/2009 between 7:00pm ~ 9:30pm at Govt Guest House Pathanamthitta & was attended by 31 members.

CDH REPORTS: Dental Awareness Camps: 1. Dr. Gigu Zakariah Philip & Dr. Sujith PR did a Dental Awareness Camp for students of Govt. LP School, Chennerkara North, Kozhencherry on 14th July 2009. 2. Dental Awareness & check-up camp was taken for students of St. Thomas LP School, Thattachad by Dr. Gigu Zakariah Philip on 24th July 2009. This programme was done in coordination with the Poovathur Gram Panchayath's school development project.

ONAM PROGRAM: As per the decision of the 10th executive, the branch conducted its Onam Program at Broke Shore Resorts Mancombu near Allapuzha tour on 20th September 2009 under the coordination of Dr. Binu Chacko. Twenty families & 9 bachelors



attended the program which included games and entertainment of members and their families.

Release of Second Edition of Xtract 2009 was done by the state president Dr. KN Prathap Kumar.

Release of Third Edition of Xtract 2009 was done by the Honorable Home Minister Mr Kodiyeri Balakrishnan before the 7th CDE held at Govt Guest House, Pathanamthitta by handing over the first copy to the Branch Editor Dr. Rajesh V on 15th October 2009.

ATTENDING STATE PROGRAMMES: 4th State Executive Committee Meeting was attended by the President Dr. Thomas Varghese, Dr. Gigu Zakariah Philip, Dr. Rajesh V, Dr. Johnykutty Jacob, Dr. Ralu Varghese, Dr. Sujith PR and State Vice President Dr. Sony Thomas on 26th July 2009

News and Events

DENTAL COUNCIL OF INDIA DIAMOND JUBILEE YEAR KERALA STATE CELEBRATIONS

Dental Council of India is celebrating 2009 as its Diamond Jubilee Year. A year long programmes are planned in which each state will have a function. The grand finale will be held during July 2010 in New Delhi.

The Kerala state programme was held on Sunday 27th September at Ramada Resorts Kochi. The inaugural meeting



presided over by Padmabhushan Dr. Anil Kohli, President DCI had Prof. KV Thomas, Union minister of state for Agriculture as the Chief Guest. Smt. P K Sreemathy, honble minister for Health and Family welfare Govt. of Kerala was the Guest of honour. The keynote address was delivered by Shri. ET Muhammed Basheer MP. Five past DCI members were honoured during the meeting. Dr. Pratap Kumar, President IDA Kerala state addressed the gathering and offered his felicitations.

Soon after the inaugural session a workshop was held on different aspects of Dental Education. Four eminent speakers made some excellent presentations to an audience of about 250 faculty members. The speakers were Dr. Mahesh Verma, Dr. Nandakumar K, Dr. Usha Mohandas and Dr. Varghese Mani. Dr. NO Varghese and Dr. George Varghese each presented papers on the Dental education scenario in the state as a whole and in the govt. sector respectively.

About 300 delegates including management representatives, principals, faculty members and students actively participated in the whole programme. The whole session came to an end by 4 O clock in the evening.

NO GUTS NO GLORY

Dr. Rohini Nair, member of IDA Trivandrum branch, started Aerosports activities in 2004 and became a life member of National Adventure Foundation (NAF). On April 19th 2006 she flew SOLO on a Powered Para Plane (PPP) BUCK EYE and became the first woman in India (and also probably in Asia) to fly a PPP. BUCK EYE is an engine driven, two seater aircraft with no canopy and has a parachute. She is a keen adventurer of aerosports and has done some flying in a Powered Hang Glider and X-Air conventional Microlight. She was trained by Commander Clyde Poser at Manimuthar (Tamilnadu) and thereafter by Wg Cdr. S.K.J. Nair (Retd). She is married to Dr. K. Radhakrishnan Nair, Prof. & HOD of Conservative Dentistry & Endodontics, Azeezia College of Dental Sciences and Research and is blessed with two daughters - Radhika and Ritika.



Members of IDA Quilon, Dr. Joseph Edward, Dr. Jayanth Jayarajan & Dr. Milan Yogaraj participated at the FDI meet at Singapore. The conference was held at SUN TEK CITY Singapore on 2nd to 5th September 2009



YOUNG ACHIEVER

Dr. Bradley Christian, son of Dr. Kevin Christian, completed his BDS at Yenepoya Dental College, Mangalore. He then passed the MDS (with honours) in Community Oral Health and Epidemiology from the University of Sydney, Australia and has now been selected for a Fellowship

at the National Institute of Dental & Craniofacial Research (National Institute of Health), Bethesda (Washington DC), Maryland, USA. He is the first non-American to get this.

He also has a publication to his credit in the **International Journal of Pediatric Dentistry**.

Dr. Bradley Christian is a member of the IDA Quilon Branch.

ORAL HYGIENE DAY CELEBRATIONS

Dr. Santhosh Sreedhar,

Programme Co-Ordinator, IDA Kerala State

Indian Dental Association Kerala State in association with Rotary Club of Payyanur observed Oral Hygiene Day on 1st August 2009 at Rotary Bhavan, Payyanur.

Inaugural Function

The function commenced with a prayer at 9.30 am. Dr. Antony Thomas, Hon. Secretary IDA Kerala State welcomed the dignitaries and the gathering.



Vice President, IDA Kerala State and President Rotary Club of Payyanur, Rtn. Dr. Santhosh Sreedhar presided over the function.

The Chief guest was Dr. Prathap Kumar K.N. President IDA Kerala State and Guest of Honour was Rtn. V.G. Nayanar District Governor Elect RI Dist. 3202. Chief guest Dr. Prathap Kumar K.N. inaugurated the programme by lighting the lamp in a traditional manner.



In his inaugural address, chief guest Dr. Prathap Kumar K.N. spoke about the importance of Oral Health and Oral Hygiene in overall health of an individual.



Rotary District Governor Elect. Rtn. V.G. Nayanar, CDH Convenor IDA Kerala State Dr. Anil G. and President, IDA Coastal Malabar Branch, Dr. A.V. Sree Kumar spoke on the occasion.

Essay and Painting Competition

As a part of the Oral Hygiene Day Celebrations, we have conducted Essay and Painting competitions for the High School students of Payyanur Municipality. 36 students took part in the Essay Competition and 68 students participated in the painting competition.



Best Smile and Healthy Teeth Contest

We also conducted Best Smile Competition and Healthy Teeth contest for the selected anganvadi children of Payyanur municipality. 95 children participated in the Best Smile Competition and 84 children took part in the Healthy Teeth Contest.

Dental Health Education Seminar

As a part of the Oral Hygiene Day Celebration, we have also organized Dental Health Education Classes for the anganvadi teachers of Payyanur Municipality. 140 Anganvadi Teachers were present for this seminar. Dr. Santhosh Sreedhar, Dr. Varun Nambiar, Dr. Ranjith Ravindran and Dr. Ahamed Shafi were the faculties and took class about Oral Hygiene, Dental Decay, Gum Disease and Irregular Teeth respectively.



Valedictory Function

CDH Convenor IDA Kerala State Dr. Anil G. distributed cash awards, prizes and certificates for the winners of the competitions.



World Dental Show

IDA hosts historic world dental show in Mumbai Spectacular boost to indian oral healthcare sector

The prestigious World Dental Show, India's largest trade exhibition in dentistry and dental technology, reflecting the changing face of dentistry in India, got off to a splendid start at the sprawling Bombay-Kurla Complex (BKC) in Mumbai, on 9 October 2009 amidst the august presence of a galaxy of dental luminaries and prominent personalities. The World Dental Show (WDS), the first of its kind being organized by IDA, is a defining moment in the history of oral health in the country. The World Dental Show is a major activity of enviable significance to IDA, in particular, and the dental profession, in general, indicative of the enormous interest that the country is generating in the dental sector. The international dental world as a whole got glued to Mumbai for the first ever World Dental Show displaying its dental wares in its quest for improving its slice in the expanding dental market in India. "To host the World Dental Show, the first ever mega event hosted by IDA in the annals of its history, in itself is a recognition as well as appreciation of the pioneering work that IDA has done for the promotion of oral health in the country and the success of WDS is a standing testimony to IDA's efforts on this front" said a beaming Dr Ashok Dhoble, the Hon General Secretary of IDA. What was on show was the entire range of products available on the international dental market, bringing together all the target groups from the worldwide dental sector.

The inauguration was presided by the President of IDA Dr. Paramjit Singh, the Chairman Dr.M.C.Mohan, the President of Aditi Trade association Mr.Rajeev Mathur and the Secretary of Mr.Shammi Gambhir.



Lt. Gen. (Dr.) Paramjit Singh, President of IDA signing MOU with University of California San Francisco for Certification Programme



President launching free Dental Check up on 9th of October for 24 hours Day & Night

Conceptualized and structured on global parameters, WDS 2009 proved to be the greatest show on earth in oral healthcare. Henceforth, it is going to be an annual meeting place for dental professionals, dental products and equipment manufacturers, dental labs, the specialist dental trade and the dental industry interested in showcasing their wares to cater to the expanding dental market in India. Participants from over a dozen countries vied with their local counterparts to display their dental wares in a global show of competitive spirit. Over 300 exhibitors displayed, in about 500 Stalls, their various state of the art dental products, equipment and materials that reflected the latest in the field of dental science. A large number aggregating more than 20000 guests from across the country visited the dental exhibition over the three days of the Show.

An added attraction at the World Dental Show was the series of scientific programmes, organized in association with the University of California, San Francisco, which began on 8 October, 2009 a day prior to the inauguration of the WDS. The symposia featured a galaxy of renowned speakers from the University who focused on Accredited Continuing Dental Education Programmes with emphasis on the most recent clinical and scientific advancements affecting the dental professional globally. These included specialities such as aesthetic dentistry, implantology, endodontics, oral surgery and restorative dentistry. Under the scheme of accreditation established by IDA, all continuing dental education activities such as courses, seminars, conferences, etc., will be eligible for allocation of credits. Dental surgeons attending such courses will be able to claim credits based on total hours attended per week which will count towards their CDE accreditation which indeed was an additional attraction. It certainly was an attractive feature and a substantial number of dentists participated to avail of the benefit.

The outstanding highlight of the World Dental Show was the unique free public dental check up by IDA's dental professionals over a 24 hour period. The up and coming Bollywood filmstar Deepika Padukone was the star attraction at the free public dental check up camp titled "Mumbai Smiles – IDA fights against the Tooth Decay". A cross-section of Mumbai's population covering school children, women, the elderly, factory workers, taxi drivers and manual labourers and others in excess of ten thousand availed of the opportunity and formed a part of the oral health revolution taking place in the country in an unprecedented show of interest in oral healthcare that had all the features of making an entry into the Guinness Book of World Records. Those exhibiting certain systemic conditions like cardiovascular, diabetes, or hypertension were privileged to have them examined by the visiting doctors from the University of California, San Francisco, United States.

The World Dental Show was a resounding success going by the responses of the exhibitors, participation of dental professionals at the scientific conference and, above all, visitors to the Show which exceeded 20000 over the three days of the World Dental Show.



Hon. Secretary General Dr. Ashok Dhoble with delegates

IDA Kerala State DENTAL DOCTORS SPORTS MEET – 9th August 2009, D.D.Retreat, Thammanam

The Dental Doctors Sports meet started with a Flag hoisting ceremony by the IDA Kerala State President Dr. K.N. Pratap Kumar at 09:00 AM just outside the playing arena. This was followed by the inauguration ceremony.

IDA Kochi President Dr. V.A. Afzal welcomed all the State Office bearers, senior members, participants, sponsors and the spectators. Dr. K.N. Pratap Kumar inaugurated the Dental Doctors Sports Meet. IDA Kerala State Secretary Dr. Antony Thomas felicitated the gathering. The First Stroke was done by Dr. K. N. Pratap Kumar and Dr. Sajith PC who was the winner of the Men's Shuttle Champion of Last year. IDA Kochi Secretary, Dr. Vinod Mathew thanked all the Office bearers, participants, sponsors and all those who came from far and near for making the program really a colorful one.

This year the games were held in Shuttle Badminton and Table Tennis. The games were held for men, women and men- 45 and above category. The participation was encouraging. This year the games were held in Shuttle badminton and Table Tennis. This is for the first time Kerala State Dental Doctors Table Tennis championship was held and IDA Kochi had taken the lead role to conduct the same and sponsor all the Trophies and Cash Awards. The Cash Awards for the Shuttle Badminton is sponsored by IDA Kerala State and the Trophies for Shuttle Badminton by IDA Kochi. In shuttle badminton we had 23 men's doubles, 19 men's singles, 4 women's singles, 2 women's doubles, and 2 men's seniors' teams. Table tennis had 9 doubles and 14 singles in men's and 5 singles in women's section.

IDA Kochi emerged as the overall champions for the year 2008-2009. Trophies were distributed to all the winners and runner up of each and every event. Dr. Pratap Kumar and Dr. Antony Thomas gave away the prizes. The event came to a close at around 5:30 PM. It was indeed an occasion for everyone in IDA to mingle and have a lot of fun.

RESULTS of D.D. SPORTS MEET

Shuttle Badminton

Men's Doubles Winners	: Dr. Vinod Mathew & Dr. Madhu H – IDA Kochi
Men's Doubles Runner up	: Dr. K.V Cyril & Dr. Shajahan - IDA Kodungallur
Men's Singles Winner	: Dr. Madhu H – IDA Kochi
Men's Singles Runner up	: Dr. Vinod Mathew – IDA Kochi
Men's Seniors Winner	: Dr. Baby K Antony – IDA Central Kerala Kottayam
Men's Seniors Runner up	: Dr. Dinesh Nambiar – IDA North Malabar
Women's Doubles Winners	: Dr. Elsy Bijoy & Kavitha Sajith – IDA Wayanad
Women's Doubles Runner up	: Dr. Remina Mathew & Dr. Brijitha Manoj – IDA Kochi
Women's Singles Winner	: Dr. Nisha Soumithran – IDA Calicut
Women's Singles Runner up	: Dr. Elsy Bijoy - IDA North Malabar

Table Tennis

Men's Doubles Winner	: Dr. Jojo Varghese & Dr. Reji Mathew – IDA Trichur
Men's Doubles Runner up	: Dr. Rajesh Kottooran & Dr. R.N. Kaushik – IDA Kochi
Men's Singles Winner	: Dr. Jojo Varghese - IDA Trichur
Men's Singles Runner up	: Dr. Sunil Wilson – IDA Malanad
Women's Single Winner	: Dr. Kavitha Sajith - IDA Wayanad
Women's Singles Runner up	: Dr. Nisha Soumithran– IDA Calicut
Dr. Poji Menachery Ever-rolling Trophy for Overall Champions 2009 – IDA Kochi	