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Basal Dental Implantology is an advanced implantologysystem which utilizes the basal portion of the jaw bones for retention of the dental implants which are uniquely designed to be accommodated in the basal bone areas. The basal bone provides excellent quality bone for the retention of these unique and highly advanced implants.

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

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President's Message

Dr Antony Thomas

Dear Colleagues,

Time is like a river, we can never touch the same water twice as the flow goes on. Yes as far as this IDA year is concerned we have reached the fag end of our tenure and mixed feelings are effervescing from my mind. I should confess that certain projects I have promised is half way and hope we will be able to cover that area in the mean time. The stellar program for the year, the Dental Assistance Course (DAC) was inaugurated and I am very proud to be a part of this milestone event. With this issue the dental health magazine is at your office table and I appeal all of you to keep this informative booklet by your side, so that this will be a good aid for the public to attain good oral health as well as it will motivate patients to do better treatment.

To promote Dental Tourism we have done the very best to put our material in the Kerala Tourism Website & I strongly believe that our endeavor will be a reality during our term. I am highly satisfied by the Ashakiran project to help the pain and palliative care society and I feel proud using the disposable apron & table cloth for patients wherein our IDA stamp is enclosed. The only problem is demand versus scarcity. It is a humble start and I hope in the coming year we will have more production to meet the demands. All the routine programs were held outstandingly well and lots of plaudits to all the local branches who were associated.

IDA Kerala State registered as a charitable society under the name IDA KSB is another milestone process happened, so that our prestigious project IDA HOPE can attain greater heights and its future is futuristic through IDA Hope scheme, we were able to hand over Rs. 10 lacs each to two bereaved families and a group insurance is envisaged to cover accidents and related treatments. I hope, the pending CDH projects will be revamped and hope we will fulfill it. More posts created in DHS is an impeccable achievement.

This year the CDE programs conducted were versatile and unique including the interstate CDE with Tamil Nadu State Branch.

We were able to represent ourselves to Govt of Kerala regarding the issue of sanctioning and seat enhancement of Dental Colleges, matters related to the proposed Clinical Establishment bill, Amendment to the Dental Council rules of Kerala, matters related to the tariff re-categorization by KSERC, Accreditation and Standardisation of Dental Clinics, Defining the role of Dental Hygienists & Regarding Proposed Health Policy. We hope that state gover nment will take appropriate steps in due course and IDA is always vigilant to mark all these areas from time to time. The activities and plans are ongoing processes and hope the successor will do a better job in the coming year and my best wishes.

"Many a mickle makes a muckle" *(Palathulli Peru Vellam)*. This is what I feel by taking stock of merits. The mickles are those who stand with me, encourages me and loves me.

Whatever our success this far has been made possible with your faith and unerring support. A big thanks to all dear members of IDA Kerala State and special word of thanks to my cabinet members & immediate past office bearers. Special word of thanks to our Hon secretary Dr O.V. Sanal who stand with me in all tidings. Special word of gratitude to Dr Viswanath, Dr Suresh Kumar G, Dr TV Ramesan, Dr Anil G, Dr K Nandakumar and all the EC Members, Subcommittee Chairmans', Presidents' and Secretaries' of local branches, IDA Hope office, Website, WDC, Kerala Dental Council, Jt DME, Jt DHS, Mr. K.M Abraham IAS, Dr Ciju Eappen & DAC office bearers. My special thanks to IDA Malabar branch for the great love and affection shown to me. I wholeheartedly welcome all of you to attend the mega event of the year "Quicon" the 46th Kerala State Dental conference at Kollam and my best wishes to the organizing team.

To my successor Dr. Nizaro Siyo I would like to share the line "The Best is Yet to be". We are confident that your faith in us will reap prospects in future.

Thanks and Regards

Dr Antony Thomas
President, IDA Kerala State.

Secretary's report

Dr. O.V. Sanal

My dear fellow members,

We are reaching fag end of our IDA year. This is the last issue of KDJ during this term. I am very happy to share with all the members of IDA Kerala state that we had a wonderful active year with the help of state executive committee members as well as president and secretary of local branches. We conducted all the state level programmes in a marvelous manner. Dental Council of Kerala helped a lot to sought out problems we are facing from government side. Converting IDA Kerala state in to IDA KSB is a landmark in the history of our association. Starting Dental Assistant Course (DAC) in co operation with higher secondary department of Kerala government is a big achievement.

The fourth executive meeting held on 8th September at Trivandrum, several matters regarding our activities discussed. Almost all the state executive committee members attended the meeting. I thank the host branch, Trivandrum for their arrangements. Emergency executive committee meeting held on 3rd November at Kozhikode. National CDE programme in association with IDA head office conducted on 20th October at Kottakkeel. A great effort taken by president and members of Malappuram branch for the arrangements. Congratulations to whole branch. Fourth state level CDE programme conducted on 10nth November at Techno park, Trivandrum. Kudos to Attingal branch.

Inter state CDE programme was conducted on 17 & 18nth August at Thenkasi, Tamil nadu. IDA Kottarakkara branch done a awesome jobe to conduct this programme. Almost all the CDH were conducted early itself. World geriatric day was observed on 1st October at Nilambur by giving 100 water beds to pain and palliative care centres. This programme jointly organised by IDA Kerala state and IDA Malappuram branch. Congratulations to Malappuram branch for conducting a different type of activity.

Kerala state students convention held on 21st September at Kannur in a befitting manner. Around 500 students from all over Kerala participated. Kudos to IDA North Malabar branch. IDA Kerala state sports meet held on 6th October at Kolancherry. Members from different branches participated. Cheers to Malanad branch especially president Ciju A. Paulose. Three centres of Dental Assistant Course started at Kannur, Kozhikode and Trivandrum from September onwards. This is a dream project of IDA Kerala state in association with department of higher education, Kerala state. We the IDA Kerala state office always in touch with government officials regarding electricity charges in clinic, clinical standardisation bill, Labour problems, waste management, etc.

All other activities of IDA Kerala State is going on very smoothly. Notices of state election already send to all members. I hope all the branch president and secretary are taking interest to inform the activities to all their respective members. We are trying to keep a good communication with local branches. As usual no words to narrate the incredible work carrying out by our editor Dr. K. Nandakumar. Our website chairman Dr. Rajeev Simon also doing brilliantly to update the activities. He is helping state office for sending communications to all members in correct time.

One more marvelous IDA year is going to end by the month of December. I know all the branches are very busy for conducting AGM and installation meetings. We are having two more programmes in coming months. On 8th December, state executive meeting at Muvattupuzha and our state conference at Kollam. I appeal all the members to register for the conference and make it a big success. I have great pleasure to become the Secretary under Dr. Antony Thomas, president of IDA Kerala state. He is an experienced IDA leader and backbone of all IDA activities throughout the year. I consider myself blessed for getting the opportunity to work with Dr. Antony Thomas. He is so much dedicated to the association. I am expressing deep sense of gratitude and love to our president on behalf of the whole members of IDA Kerala state

The incidence of oral diseases has been growing on the back of changing lifestyle and apparent neglect of dental hygiene. Against this background, dental research in particular, has a significant role to play in alleviating human sufferings and improving the quality of life. IDA is a professional organization to take up these challenges. Be with IDA.

Warm regards,

Dr. O.V. Sanal
Hon. Secretary, IDA Kerala State

Dr. K. Nandakumar

Fact, not fiction should decide the curriculum revision

In the past twenty five years, our country has witnessed a phenomenal expansion in the field of professional education especially related to dental science. Number of institutions offering undergraduate and postgraduate courses has increased, number of students and professionally qualified people have increased, newer treatment options have been developed and the finances have improved. But there is an opposite side to this picture. Dentistry seats are increased not because our country badly needs them but because of the fact that offering dental education has become a fine business proposal. The number of patients required for clinical training has drastically reduced and hence the quality of clinical training had a natural fall. A fragile assessment system casually or carefully nurtured by teachers and universities, under different types of pressures, has diluted every norm related to ensure quality required in our professionals. The most essential screening required at the admission stage has become history in our country. Every one conveniently forgets one fact that these professionals are going to handle our dental health needs in the future. With what level of confidence, the patients can approach them? May be their ignorance of the contextual realities might drive them to these professionals. But it will happen only once. Degrees are recognized by the infrastructure, number of teachers and by the number patients entered in registers. The competence of the graduate is never tested before they are allowed to practice. The quality of our dentist is based on fiction rather than realities. It is in this context we have to approach the proposed curriculum revision. Rules when formulated should have real teeth not unstable dentures.

Dr. K. Nandakumar
Editor, KDJ

Esthetic management of an avulsed tooth that exceeded extra oral dry time

* Krishnan Hari, ** S. Mahalaxmi

Abstract

Sudden loss of an anterior tooth as a result of trauma, periodontal disease, or endodontic failure is a true esthetic emergency for the patient. Despite a wide range of treatment options available, traumatised teeth may be inevitably lost on certain occasions. This case report describes the immediate replacement of a lower left lateral incisor following trauma using a fiber-composite resin with the natural tooth crown as a pontic. Cosmetic demands, lack of time and affordability being the primary reasons to this single visit esthetic procedure wherein abutment teeth can be conserved with minimal or no preparation and thus can be completed at chair side thereby avoiding laboratory costs.

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Introduction

A missing anterior tooth has implications for how we present ourselves to others and affects how we feel about ourselves. If the tooth or tooth crown is still intact and the patient brings it with them to the dental office, it is easiest to use it as a natural tooth pontic, joining it to the adjacent teeth with an adhesive composite with fiber reinforcement ribbon, especially when esthetics demand, lack of time and affordability being the primary concerns of the patient. Techniques to replace a single missing anterior tooth by adhesive splinting using a natural tooth pontic, denture tooth, or composite resin tooth pontic embedded in wire, metal mesh, nylon, mesh, and cast metal frameworks have been described. [1-6] The drawbacks that existed in these techniques included lack of bonding in between composite and metal or nylon leading to fracture at the composite interface. Furthermore, to extend the durability of the restoration with submerged wires and mesh grids, composite resin had to be thick and bulky to minimize fracture. [7-8] This thick and overcontoured restoration led to an increase in food and plaque retention and difficulties in maintaining periodontal health.

Since the introduction of adhesive dentistry and many improvements which are achieved in this field, the acid etch bridge technique has been introduced in which a fiber reinforced composite or even patient's own natural tooth in cases where crown portion of tooth is intact and sound can be used. [9] Use of patient's own tooth as a pontic offers the benefits of being the right size, shape, and color and restores confidence in a psychologically traumatized patient. Most of the case reports presented includes natural tooth pontic as a restorative option in periodontally compromised teeth. This case report describes clinical steps of natural tooth pontic as a restorative option for replacement of an avulsed tooth that could not be replanted due to more than two days of extraoral dry time.

Case report

A 45-year-old female patient reported to the department of Conservative Dentistry and Endodontics, SRM Dental College, Chennai, with a chief complaint of tooth loss due to trauma. The patient had experienced a domestic quarrel two days before she presented and hence was not able to report for reimplantation on the same day which resulted in more than one day of extra oral dry time. The patient reported with her avulsed tooth (Fig 1b) wrapped in tissue paper. The patient's medical

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Fig. 1(a) Clinical photograph of the site of avulsed left mandibular lateral incisor, 2 days following trauma.

Fig. 1(b) Avulsed left mandibular lateral incisor brought in by the patient.

Fig. 2 Prepared tooth following root resection and pulp extirpation to use as a natural tooth pontic.

history was non-contributory. The patient's oral hygiene status was assessed to be fair. Clinical examination of the lost tooth space showed that healing was in progress without any soft tissue lacerations. Intra oral periapical radiographs were taken to rule out the periodontal status of the abutment teeth and the presence of any debris in the healing alveolar socket. Visual examination of the avulsed tooth revealed sound tooth structure without fracture or facets. Various treatment protocols were discussed with the patient. High costs and lack of time required for implant and fixed partial prosthesis led to the patient accepting natural tooth pontic as a restorative option for replacing her missing lower left lateral incisor.

The root of tooth was resected 2 mm below cementoenamel junction (Fig 2) with a 556 bur (SS White Burs), access opening was done, followed by extirpation of pulp tissue from the canal. The pulp chamber was sealed at the site of amputation with microfilled hybrid composite (FILTEC Z 250, 3M ESPE). The gingival aspect of the tooth was smoothened and shaped to be rounded. The pontic and the abutment were cleaned with pumice, washed, and dried. Retentive grooves were given on the palatal surface of the pontic and the abutment for retention. The palatal surfaces of the abutments and the pontic were acid etched using 37% phosphoric acid (Scotchbond Etchant; 3M ESPE) for a period of 15 seconds washed and dried. The bonding agent (Adper Single bond 2, 3M ESPE) was applied and light cured using quartz -tungsten -halogen lamp (Trilight, 3M ESPE) according to the manufacturer's instructions. To measure the length of fiber needed, a piece of dental floss was placed on the facial surfaces of the teeth, extending from the left mandibular central incisor to left mandibular canine. A pre-impregnated fiber (Ribbond Inc., Seattle WA) was cut accordingly (Fig 3). The pontic was positioned carefully and a drop of flowable composite was placed on the mesial and distal aspects of the pontic to stabilize its position correctly and to prevent its movement during fiber placement. The Ribbond fiber (Ribbond Inc., Seattle WA) was pressed into the resin with the aid of a composite hand instrument to ensure its close adaptation on to the pontic and adjacent teeth surfaces. The assembly was light cured using QTH lamp (Trilight, 3M ESPE) from labial and palatal directions for 40 seconds (Fig 4). The final steps included contouring and polishing of the composite restoration (Fig 5). The patient was informed about the importance of proper oral hygiene and was followed up periodically.

Discussion

This case report describes a simple, esthetic, economical and a quick method to manage an avulsed tooth that has exceeded the minimum extraoral time period (the avulsed tooth was not placed in a suitable transport medium for more than 2 days) required for reimplantation due to trauma. Other single tooth replacement options include conventional fixed partial dentures, removable partial denture and single implant. Dental implants in the esthetic zone are well documented in the literature, and numerous controlled clinical trials have documented satisfactory overall implant survival and success rates. Such restorations are complicated by cost of the restoration, lack of time and patients fear regarding its success. The development of adhesive systems has provided other treatment options that are minimally invasive and simpler.

Replacement of the tooth with natural tooth pontic and ribbond was preferred in this case to immediately restore the esthetics of the patient because this chair side technique does not require laboratory procedures. According to a clinical 5-year follow-up pilot study, glass-FRC fixed partial dentures exhibited an overall survival rate of 75% and functional survival rate of

Fig. 3 Ribbond fiber cut to measurement ready for placement.

Fig. 4 Light curing of the assembly from labial and palatal directions for 40 seconds.

Fig. 5 Post operative photograph.

93%.[10] The key to ribbonds (Ribbond Inc., Seattle WA) success is its patented leno weave designed with a lock-stitch feature that effectively transfers forces throughout the weave without stress transfer back into the resin. Having virtually no memory, Ribbond (Ribbond Inc., Seattle WA) adapts to the contours of the teeth and dental arch. In addition, unlike loosely braided or bundles of unidirectional fibers, ribbond does not spread or fall apart when manipulated.

Conclusion

Natural tooth pontic can be used as interim restoration for replacement of missing anterior tooth. This technique is simple, less time consuming, provides good esthetics and function. This procedure is highly operator dependent and demands appropriate case selection and precise technique. Appropriate patient education and instructions to clean the gingival embrasures and avoid having heavy bite is very critical.

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Compound odontome

* Sreejith V P, ** Joy R Das, *** Amith Vasudevan, **** Anil Thunoli

Abstract

Odontomes are the most common odontogenic tumour of the jaws, which are benign, slow growing and non-aggressive. Odontomes are usually asymptomatic but sometimes may interfere with the eruption of the associated tooth leading to impaction or delayed eruption. What follows is the case report of a 11 year old girl who complained of missing teeth in the upper front region. We present a case of large compound odontomes in the maxillary anterior region resulting in impaction of 21 & 23. Surgical removal of the odontomes were done. Surgical excision of the lesion was performed to allow for the eruption of permanent teeth. In present case one year follow up indicate no signs of recurrence. Early detection of odontomes allow the adoption of a less complex expensive treatment, eruption of permanent teeth and ensures better prognosis.

Keywords: Compound odontome, impaction, hamartoma, odontogenic tumour.

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Introduction

Odontoma, first described by Paul Brocka in 1866 is a benign odontogenic tumour combining mesenchymal and epithelial dental elements.[1] Odontomes are odontogenic tumours formed basically of enamel and dentin but they can also have variable amounts of cementum and pulp tissue.[2] They are generally small but occasionally grow to large sizes causing bone expansion. The WHO classification on odontogenic tumours define it as a malformation in which all dental tissues are represented, individual tissues being well formed, but occurring in a more or less disorderly pattern, and are classified as complex or compound odontomas.[3]

The compound odontome is a lesion in which all the dental tissues are represented in an orderly fashion that results in many teeth like structures, but without morphologic resemblance to normal teeth. This lesion occurs due to the developmental disturbances wherein the dental components are laid down in a disorganized manner, due to failure of normal morpho differentiation. In a complex odontome the calcified dental tissues are simply arranged in an irregular mass, bearing no morphologic similarity to rudimentary teeth. Complex odontome is less common when compared to the compound, and they present in a ratio of 1: 2.4 Average age of people found with an odontome is 12 to 14 years.[3,4] A compound odontome has three separate dental tissues: enamel, dentine & cementum, but may present a lobulated appearance where there is no definitive demarcation of separate tissues between the individual "TOOTHLETS". It usually appears in the anterior maxilla. Complex odontomes are unrecognizable as dental tissues, usually presenting as radio opaque areas with varying densities in the radiographs. It usually appears in the posterior maxilla or mandible. Pain, swelling and infections are the most common symptoms, and these cases presented with impacted tooth associated with the odontome.[5]

Case report

A 11 year old girl reported to the department of Oral & Maxillofacial Surgery, Kannur Dental College with missing central incisor and canine in the upper left region of the jaw (Fig 1). A physical examination revealed a poorly built and nourished patient. The intra oral examination revealed enough space for 21 to erupt and 11 & 22 had already erupted; 23 was missing. Area between 11 and 23 showed a uniform unicortical expansion. There was also the presence of a swelling and the patient had slight pain on palpation in that area. Initially an IOPAR was suggested to check whether 21 & 23 were present or not. Radiograph showed impacted 21 and 23 and a

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Fig. 1

Fig. 2

Fig. 3

compound odontome with one supernumerary tooth (Fig 2). There was a radiopaque solid mass with occasional nodular elements surrounded by a fine radiolucent zone separated from the normal bone by a well-defined cortication line. Differential diagnoses made based on the clinical and radiological features included compound odontome, cementoblastoma, ameloblastic fibro odontoma, and Pindborg's tumour. In this case there was the presence of a radiolucent rim around the lesion with an area of dense radiopacity produced by enamel which helped to distinguish the odontome (Fig 1).

Surgical procedure

Surgical removal of the odontomes under local anaesthesia were done after obtaining consent from the parents. Bilateral infra orbital nerve block with buccal and palatal infiltrations were given following which mucoperiosteal flap was raised with releasing incisions bilaterally on the buccal aspect. There was a thin cortical bone, covering the odontomes and the supernumerary tooth. The bone was removed with a 701 Bur followed by elevation of the tooth-like structures from the socket. 20 small odontomes and 1 large cow horn -shaped odontome was retrieved (Fig 3). All the odontomes were interconnected with a soft tissue lining. The socket was cleaned and the lining enucleated followed by irrigation with normal saline. The size of the socket was around 18mm x 10mm in diameter and depth of 8mm (Fig 4). AB gel was placed inside the socket as camouflage and the flap was closed with 3-0 vicryl. The whole procedure was uneventful and was followed up with regular reviews. All these odontomes were sent for histopathological examination. The histology also confirmed this as compound odontomes. The post operative radiograph taken after one year has also been included (Fig 5)

Discussion

Odontomas are commonly encountered in the first and second decades of life, and are accepted as developmental anomalies (hamartomas) rather than true neoplasms. Hamartomas of tooth forming tissues are termed as odontomes.[6] They are the most common tumour of epithelial and mesenchymal origin and account for 22% of all odontogenic tumours. The etiology of odontome is largely unknown but has been related to various causes such as local trauma, infection, growth pressure, hereditary anomalies (Gardeners syndrome, Hermann's syndrome), odontoblastic hyper activity and alterations in the genetic components responsible for controlling dental developments.[7,8] The persistence of a portion of a dental lamina may be an important factor in the aetiology of an odontome, which occurs instead of a tooth. Some investigators have suggested that the ameloblastic fibroma and ameloblastic fibro-odontoma both developmentally and histo-morphologically represent the early stages of formation of odontomes.[9] Sources of cells for odontomes could be mature ameloblasts, cell rests of Serres, or odontogenic epithelial cells.[10]

Clinically compound odontome is a painless, slow-growing, and expanding lesion that is usually discovered on routine radiographs of the jaw bones, or the failed eruption of a permanent tooth which may lead to the diagnosis of this lesion. Very few cases have been reported in literature. The mechanism of odontome eruption appears to be different from tooth eruption because of the lack of periodontal ligament and root in odontome. Therefore the force required to move the odontome is not linked to the contractility of the fibroblasts, as in the case for teeth. Although there is no root formation in odontome, its increasing size may lead to the sequestration of the overlying bone and hence occlusal movement or eruption. An increase in the size of the odontome over time produces a force sufficient to cause bone resorption.[11]

Radiologically, the compound odontome appears as a collection of tooth-like structures while complex type appears as a calcified mass with a radiodensity similar to tooth structure; both are further surrounded by a narrow radiolucent zone. Unerupted teeth are more commonly associated with compound odontomes as is seen from this case. Rarely odontomas may form peripheral or soft tissue lesions in which they arise outside alveolar bone and may exfoliate or erupt.[12]

Fig. 4

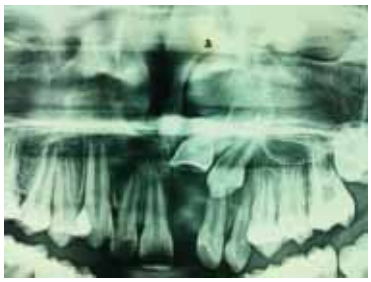

Fig. 5

Fig. 6

Microscopically, this lesion consists primarily of a well-delineated, roughly spherical mass of a haphazard conglomerate of mature hard dental tissues. Clear spaces and clefts that probably contain mature enamel lost in the process of decalcification are often seen. In some sections at the periphery of the mass, islands of pulp tissue in association with cords and buds of odontogenic epithelium can be found. However, the usual high degree of differentiation of the dental tissues reflects the late stage of morpho differentiation and maturation of odontogenesis. A thin, fibrous capsule and, in some cases, a cyst wall is seen surrounding the lesion.[13]

Differential diagnoses include the ameloblastic odontoma and ameloblastic fibroodontoma. They bear great resemblance to the common odontome, particularly on the radiograph, and thus it is suggested that all odontomas should be sent to an oral pathologist for microscopic examination and definitive diagnosis. In most of the odontomes, pathologic alterations are observed in the neighbouring teeth as well such as devitalization, malformation, malposition and impaction. Most odontomes are discovered accidently, thus further supporting the use of radiography as an indispensable tool in routine dental clinical examination

Odontomes are easily enucleated, and adjacent teeth that may have been displaced by the lesion are never harmed by surgical excision because they are usually separated by a septum of bone. The treatment option for odontome comprises surgical extraction, fenestration and posterior orthodontic traction or simple observation with periodic clinical and radiographic examination to evaluate the path of eruption of teeth.[14,15] If needed, a control X-ray should be taken during the surgery. The prognosis is always good since these tumours do not tend to recur. As odontomas are often associated with impacted teeth, there is possibility for the impacted tooth to erupt. But in this case, after one year follow up, the central incisor and the canine is still impacted, with mesial migration of the lateral incisor (Fig 6). Now the plan is to re expose the same and do the orthodontic treatment.

Conclusion

Odontomes are the most common type of odontogenic tumours or hamartomas and arise as a result of aberration in the tissues responsible for the formation of the teeth. They are usually asymptomatic requires surgical removal and careful monitoring to guide unerupted teeth in to normal occlusion. They may be an incidental finding, but some cases present with pain and swelling. The early diagnosis of the odontomes allows the adoption of a less complex and less expensive treatment and ensure better prognosis.

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Tooth-supported ball attachment retained mandibular overdenture

* Renjini P.S., ** S. Anil Kumar, *** C. Rajesh

Abstract

Treatment with overdentures is widely used for prosthetic rehabilitation of elderly patients. The goal of maintenance of roots are to prevent alveolar bone resorption, provide better load transmission, maintain sensory feedback and achieve better stability of denture with emphasis on avoiding the psychological impact of being completely edentulous. Ball attachments are considered the simplest type of attachments for clinical application with implant or tooth supported overdentures. Attachments are generally resilient and the specific design of ball attachments may influence the amount of its free movement. This case report explains the treatment of a patient with tooth - supported mandibular overdenture retained by means of metal copings with ball attachments.

Key words: mandibular overdenture, ball attachment, o-rings

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Introduction

Teeth may be lost due to trauma, caries, periodontal disease, congenital defects, or iatrogenic causes. Tooth loss has a negative impact on masticatory function, aesthetics, and self-image[1]. Rehabilitation of a partially edentulous patient can be attained using a wide range of prosthetic treatment options. Depending upon the clinical need and demand, restoration of the lost structures can be achieved using simple conventional removable partial denture, overdenture, fixed partial denture, or dental implant[2]. An overdenture, defined as "a removable partial or complete denture that covers and rests on one or more remaining natural teeth, roots, and/or dental implants is a viable option[3]. Various terms have been used to describe this treatment modality: overlay denture, telescopic denture, tooth – supported denture, hybrid denture, crown and sleeve prosthesis and superimposed denture[4].

Case report

A 52 year old male reported to the Department of Prosthodontics, Government Dental College, Kottayam for replacement of lost teeth. On intraoral examination, 17,14,25,28,31,32,33,37,41,42 and 43 were the only teeth remaining. Clinical examination and IOPA radiographs revealed grade IV mobility and poor periodontal status with reduced bone support of 17, 14, 25,28,31,37 and 41. While 32, 33, 42 and 43 had adequate bone support with favourable prognosis. It was decided to extract all the periodontally weak teeth and to rehabilitate with maxillary complete denture and mandibular attachment retained overdenture.

After adequate healing of the extraction wounds, periodontal status of the remaining teeth i.e. 32, 33, 42 and 43, were reevaluated and found favourable. As a primary requisite for overdenture treatment these teeth were submitted to intentional root canal treatment. The teeth were then prepared to the gingival level with cervical heavy chamfer ferrule to accommodate thimble shaped copings (Figs.1 and 2). 6mm deep post spaces were also created on these four remaining teeth.

The post spaces was recorded in pattern resin (GC Corporation, Italy) and were picked up in the stock tray impression of prepared teeth using Poly vinyl siloxane putty (Elite HD+, Zhermack, Italy) and light body (Virtual, Ivoclar Vivadent, Italy) material in a dual

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Fig. 1 Before tooth preparation

Fig. 2 After tooth Preparation.

Fig. 3 Thimble shaped copings with and without ball attachments

Fig. 4 Silicone o-rings with housings

Fig. 5 Silicone o-rings with housings placed over the canines

Fig. 6 O-rings on the under surface of the denture after polymerization.

mix single step technique. Custom Posts with thimble shaped copings and ball attachments were fabricated for 33 and 43 and thimble shaped copings without ball attachments for 32 and 42 on the resultant cast. (Fig.3)

The copings with custom posts were then luted using type-I glass ionomer cement (Xtra lute, Medicept, Italy). A custom tray was fabricated using Autopolymerising Poly Methyl Methacrylate (DPI RR) on the cast for recording final impression in polyvinyl siloxane light body (Virtual, Ivoclar Vivadent, Italy) after border moulding with putty (Elite HD+, Zhermack, Italy). Jaw relations were recorded and transferred to semi adjustable articulator (Hanau wide vue II) for fabrication of trial dentures.

During the insertion phase of the complete dentures, silicone o-rings with housings were placed over the ball attachments of 33 and 43 (Fig.5) and the corresponding tissue fitting surface of mandibular denture was trimmed to accommodate the housings.

Autopolymerising Poly methyl methacrylate resin (DPI RR) was mixed and placed over the trimmed area and the lower denture seated in patient's mouth. After polymerization, lower denture was removed with the o-rings and housings attached to the under surface of the denture. (Fig. 6)

Excess acrylic resin was carefully trimmed and the upper and lower dentures were inserted. It was noted that the ball abutments had remarkably increased the retention of the Lower denture. On recall appointments, it was found that improved retention and stability of the denture had considerably helped to boost the confidence level of the patient.

Discussion

Overdentures offer several advantages over conventional complete dentures. The most important benefits being preservation of remaining alveolar supporting bone, increased stability and improved retention of the denture[5]. The patient also enjoys a degree of proprioceptive guidance with resultant psychological advantages[6]. This case report involves the preservation of radicular portion of the two mandibular lateral incisors and canines for rehabilitation with overdenture. The design involves use of cast custom made posts with thimble shaped metal copings on both lateral incisors and canines, with ball attachments on the thimble copings of canines. Cast copings on teeth utilized for overdenture rehabilitation have proved to remarkably reduce caries incidence (Scotti et al., 2002; Dalkiz et al., 1992)[7]. Besides this the use of attachments can redirect occlusal forces either away from weak supporting abutments onto soft tissues or toward stronger abutments away from soft tissues. They also act as shock absorbers and stress redirectors while providing superior retention. The metal ball with O-ring attachment system is considered to be a good resilient attachment for overdentures[8,9]. In addition to good retention, the use of attachment enhances esthetics of prosthesis compared to conventional clasp retained prosthesis and also provided trouble free oral hygiene maintenance[10]. In order to design such an overdenture attachment adequate mandibular vertical occlusal height to accommodate the ball attachment without interfering with esthetics is an absolute prerequisite.

Fig. 7 Preoperative photograph

Fig. 8 Post operative photograph

Conclusion

Lack of retention of mandibular dentures is a common complaint among the complete denture patients. Although the concept of implant overdentures has become more popular recently, not all patients are able to afford the treatment costs. A tooth-borne overdenture is a better option provided the remaining teeth have adequate bone support. Such overdentures by preserving periodontal ligament of the remaining teeth help to improve proprioceptive responses of the individual. Incorporation of attachments in overdentures will also help to increase retention of denture thereby increasing patient satisfaction.

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Platelet Rich Fibrin (PRF)

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Abstract

The ultimate goal of root canal therapy is to return the infected tooth to a state of health and function. Failure of endodontic treatment may at times warrant surgical intervention. Over the years, newer approaches in surgical endodontics such as regenerative procedures have evolved, that aim at promoting rapid healing and restoring lost periapical tissues. Platelet Rich Fibrin (PRF) or second generation platelet concentrate is an autologous material containing all the constituents of a blood sample which are favourable to healing and immunity. PRF may be considered a carrier for bioactive agents and healing substance that causes less post surgical pain. When compared to the use of Platelet Rich Plasma (PRP), PRF has advantages that; it is simplified, cost effective, promotes effective cell migration, cell proliferation etc. This case series presentation provides an overview highlighting the role of Platelet Rich Fibrin, its mechanism of action and benefits it offers to the future of endodontics.

Keywords: Regenerative procedures, Platelet rich fibrin, Platelet rich plasma, autologous material, bioactive agents.

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Introduction

Regenerative endodontics entails the replacement of tissues lost to disease or injury with physiologically equivalent engineered tissues. Often, tissues in the oral cavity are of complex nature with bordering mineralized and soft tissue components, both of which harbor unique progenitor populations residing within specialized extracellular matrix frameworks. Mimicking such complex environments by using chemically homogenous scaffolds and uniform stem cell populations is often challenging. Instead, recent approaches favor complex natural scaffolds that allow for repopulation with the patient's own cells, thereby producing an autologous tissue-engineered organ.[5] One such complex natural scaffold ideally suited for autologous tissue regeneration is platelet-rich fibrin (PRF), a second generation platelet concentrate developed as an improvement over the earlier introduced platelet-rich plasma (PRP) as an aid for tissue repair and regeneration.[5]

PRF was first developed in France by Choukroun et al.[1,3] for specific use in oral and maxillofacial surgery. This technique requires neither anticoagulant nor bovine thrombin (nor any other gelling agent).[3] It is nothing more than centrifuged blood without any addition, which makes it possible to avoid all the restrictions of the French law related to blood-derived product reimplantation.[3]

The PRF protocol is very simple: A blood sample is taken without anticoagulant in 10-mL tubes which are immediately centrifuged at 3000 rpm for 10 minutes (fig. 1). The absence of anticoagulant implies the activation in a few minutes of most platelets of the blood sample in contact with the tube walls and the release of the coagulation cascades. Fibrinogen is initially concentrated in the high part of the tube, before the circulating thrombin transforms it into fibrin. A fibrin clot is then obtained in the middle of the tube, just between the red corpuscles at the bottom and acellular plasma at the top (fig. 2). Platelets are theoretically trapped massively in the fibrin meshes.[1] The PRF clot is then placed on the grid in the PRF Box and covered with the compressor and lid. This produces an inexpensive autologous fibrin membrane in approximately one minute. The success of this technique entirely depends on the speed of blood collection and transfer to the centrifuge.[3] Indeed,

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Fig. 1 Centrifuge

Fig. 2 Fibrin clot obtained

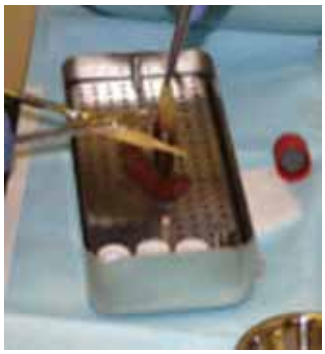

Fig. 3 PRF placed in mesh

Fig. 4 PRF matrix

Fig. 5 Pre-Op IOPA

Fig. 6 Apicectomy performed

Fig. 7 PRFplaced

Fig. 8 Sutured

Fig 9: After 8 months

without anticoagulant, the blood samples start to coagulate almost immediately upon contact with the tube glass, and it takes a minimum of a few minutes of centrifugation to concentrate fibrinogen in the middle and upper part of the tube. Quick handling is the only way to obtain a clinically usable PRF clot. If the duration required to collect blood and launch centrifugation is overly long, failure will occur: The fibrin will polymerize in a diffuse way in the tube and only a small blood clot without consistency will be obtained (fig. 3). Hence, the PRF protocol makes it possible to collect a fibrin clot charged with serum and platelets. By driving out the fluids trapped in the fibrin matrix (fig. 4), practitioners will obtain very resistant autologous fibrin membranes.

These case reports are about patients who had clinically presented with pain and periapical lesion. The conventional endodontic treatments were performed in these patients which was followed by apicectomy. PRF was then introduced into the surgical site and then sutured. Postsurgical pain was almost negligible. After a few months of follow up treatment there was favourable healing thereby increasing the prognosis of the affected tooth.

Case Report-1

Patient aged 27, male reported to the dental OP with complain of pain in upper front tooth region. On clinical examination teeth 41, 31, 32 were tender on percussion. On radiographic examination it was revealed that there was extensive bone loss and a periapical lesion was present in relation to 41, 31 and 32 (Fig. 5). RCT was initiated in 41, 31 and 32 and then followed by apicectomy (Fig. 6). After obtaining PRF from the patient's blood sample the surgical site was thoroughly rinsed with the PRF exudate. And then PRF was introduced into the site and then sutured. Satisfactory healing was found in the surgical site after eight months of follow up treatment (Fig. 9).

Case Report-2

Patient aged 26, female reported to the dental OP with complaint of pain and swelling in upper front teeth region. On clinical examination 11,12,13 were tender on percussion. On radiographic examination it revealed that there was a periapical lesion in relation to 11,12 and 13 (Fig. 10). Conventional RCT was performed in the affected teeth (Fig. 11). Then after apicectomy was performed PRF was applied into the surgical site and then sutured (Fig 12 & 13). Follow up treatments showed favourable healing (Fig:14).

Fig 10: Pre-OP radiogragh

Fig 11: RCT in 11,12,13

Fig 12: Apicectomy

Fig 13: PRF placed performed

Fig 14: After 6 months

Discussion

PRF is a matrix of autologous fibrin, in which are embedded a large quantity of platelet and leukocyte cytokines during centrifugation[1]. It has the characteristic of polymerizing naturally and slowly during centrifugation[3]. And the thrombin-concentrations acting on the collected autologous fibrinogen are almost physiologic because there is no bovinethrombin addition[1]. PRF releases high quantities of three main growth factors transforming growth factor b-1 (TGFbeta-1), platelet-derived growth factor AB (PDGF-AB), vascular endothelial growth factor (VEGF), and an important coagulation matricellular glycoprotein (thrombospondin-1, TSP-1) during seven days[5]. It is believed to contain platelets in a concentration seven times that of blood. Apart from these PRF also secrete EGF, FGF, and three important pro-inflammatory cytokines- IL-1b, IL-6, and TNF-a[5]. Due to its mechanical function, a rapid angiogenesis promoting ability and an easier remodeling of fibrin in a more resistant connective tissue, PRF membranes are viable material for all types of superficial cutaneous and mucosal healing.

PRF is in the form of a platelet gel and can be used in conjunction with bone grafts, which offers several advantages including promoting wound healing, bone growth and maturation, graft stabilization, wound sealing and hemostasis, and improving the handling properties of graft materials[1]. PRF can also be used as a membrane.

PRF has many advantages over conventional PRP. PRF preparation is a simplified and cost effective process over PRP. It eliminates the redundant process of adding anticoagulant as well as the need to neutralize it. The addition of bovine-derived thrombin to promote conversion of fibrinogen to fibrin in PRP is also eliminated. The elimination of these steps considerably reduces biochemical handling of blood as well as risks associated with the use of bovine-derived thrombin. The conversion of fibrinogen into fibrin takes place slowly with small quantities of physiologically available thrombin present in the blood sample itself. Thus, a physiologic architecture that is very favorable to the healing is obtained due to this slow polymerization process.

Conclusion

Although PRF belongs to a new generation of platelet concentrates, it is in the first place a fibrin technology. Indeed, the biologic activity of the fibrin molecule is enough in itself to account for the significant cicatricial capacity of the PRF. And the slow polymerization mode confers to the PRF membrane a particularly favorable physiologic architecture to support the healing process. However, it is now necessary to look further into platelet and inflammatory features of this biomaterial. Only a perfect understanding of its components and their significance will enable us to comprehend the clinical results obtained and subsequently extend the fields of therapeutic application of this protocol.

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The oral gymnast-a true wonder!!

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Abstract

Anterior open bite can be defined as the presence of a negative vertical relationship between the incisor margins of the upper and lower anterior teeth, which compromises both esthetics and function. This case report deals with an 8 year old female child who reported with the complaint of an anterior open bite. Frankel IV appliance was used to correct the malocclusion by harnessing the natural growth. A habit breaker was also provided to intercept the tongue thrusting habit. Appliance therapy along with rigorous lip exercises helped achieve a positive overbite of 3mm, thus proving myofunctional therapy to be a crucial treatment modality in growing children.

Key words: Anterior open bite, Frankel IV appliance, Habit breaker appliance

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Anterior open bite (AOB) is a malocclusion that considerably compromises aesthetics and function. It is characterised by dental and/or skeletal alterations that have an impact on quality of life[1]. AOB can be defined as the presence of a negative vertical relationship between the incisor margins of the upper and lower anterior teeth[2]. A full understanding of the aetiological factors is necessary for the establishment of an individualised treatment plan. The etiology refers to a combination of variables, such as suction of objects, premature dental loss, hypertrophic tonsils, mouth breathing, tongue thrust, macroglossia, temporomandibular joint internal disorder and supernumerary teeth. Nasal obstruction before and during the pubertal growth should also considered. According to a number of authors, AOB may develop as a result of inherited skeletal patterns that exercise a decisive influence over the growth and development of orofacial structures[2,3,4]. Thus, individuals with an inherited predisposition to this malocclusion are likely to present it and the degree of manifestation may be influenced by favourable or unfavourable environmental factors.

Case report

The parents of an 8 year old child reported to the department of Pedodontics and preventive dentistry, A.B. Shetty Memorial Institute of Dental Sciences, Mangalore, with the complaint of open mouth and gap between the upper and lower teeth. On extra oral examination, the child had a dolicocephalic head type with a leptoprosopic facial pattern. The facial profile was convex with posterior divergence and no facial asymmetry (Fig 1). On intra oral examination, Angle's class I molar relation with an anterior open bite of about 4mm was observed (Fig 2). The child was in the mixed dentition stage with presence of permanent first maxillary and mandibular molars and incisors, along with primary canines and primary molars of both arches. Due to the presence of an open bite the child had a tendency to protrude the tongue through the anterior open space in an attempt to obtain oral seal. Lateral Cephalogram was advised to assess the skeletal relation of the patient. The patient had a skeletal class II relation with increased mandibular plane angle.

The treatment plan was primarily aimed at correcting the open bite by harnessing the growth potential of the child. Hence Frankel IV (Fig 3) was advocated to redirect the skeletal growth to achieve bite closure. Along with the functional regulator, removable tongue crib (Fig 4) was delivered to discontinue the habit of tongue thrust and patient was encouraged

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Table I: *Cephalometric Values:*

	Pre treatment values	*Post treatment values*
SNA	77^0	77^0
SNB	69^0	69^0
ANB	8^0	8^0
Gonial angle	139^0	136^0
SN–upper incisor	105^0	104^0
Mand–lower incisor	94^0	92^0
Inter incisal angle	114^0	118^0
SN- MP angle	47^0	45^0

Fig. 1 Facial Profile before treatment

Fig. 2 Intra Oral view before treatment

Fig. 3 Frankel IV appliance

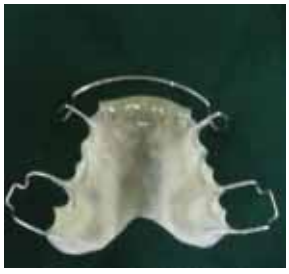

Fig. 4 Habit breaking appliance

Fig. 5 Intra Oral View after delivery of the appliance

to obtain oral seal with closure of lips (Fig 5). Rigorous lip exercises were also advised to the patient for the short and hypotonic lip. After a year of FR-IV, removable tongue crib appliance and lip exercises an overbite of 1mm was obtained (Fig 6,7) and 36 months later, an overbite of 3 mm was obtained (Fig 8). The cephalogram was made at this point to observe the skeletal changes obtained with the use of FR-IV (Fig 9) (Table I).

Discussion

Frankel considered the deficiency of an anterior oral seal and the incompetent lip posture due to poor postural performance of the lip valve musculature, as the most important factor for the cause of skeletal anterior open bite malocclusion.[5,6] Lip seal training with the functional regulator appliance is an effective means of activating and improving muscle tone. This creates the anterior oral seal and suspends the mandible in a proper postural position.[7] On this basis, FR-IV was delivered for the appropriate skeletal growth modulations, tongue crib for proper tongue positioning and lip exercises to increase the tonicity of lip.

In this case, significant clinical changes observed were the attainment of positive overbite of 1mm with competent lips. The cephalometric values showed decrease in the gonial angle from 139^0 to 136^0, decrease in mandibular plane angle of 2^0 and an increase in the inter-incisal values of 4^0 from 114^0–118^0.

The most likely explanation for the reduction in mandibular plane angle was the result of differential increase between the total posterior and anterior facial height. Greater posterior growth would result in the lowering of the gonial region and subsequent upward and forward mandibular rotation. Theoretically, Frankel and Frankel[8] explained this rotation mechanism with the possible effect of the function regulator's buccal shields and lip seal exercises. They hypothesized that the posterior edges of the buccal shields are deeply positioned in the vestibular sulcus and provoke pressure sensation in this area. They suggested that, concomitant with the lowering of the posterior part of the mandible, its anterior part could be raised with the posterior edges of the FR as a rotational centre. They concluded that such a forward rotation of the mandible was brought about by the

Fig. 6 Lateral Profile after 1yr

Fig. 7 Intra Oral view after 1yr of treatment

Fig. 8 Intra oral view after 36 months of treatment

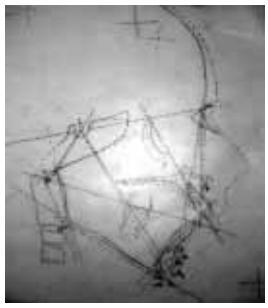

Fig. 9 Pre and Post Cephalometric Superimposition

force of the vertical muscle chain being strengthened by lip seal exercises. This hypothesis is supported by the clinical evidence that the increase in posterior facial height and ramus length with a concomitant relative decrease in anterior facial hight and the lower face height appeared to be accomplished only when the postural weakness in the orolabial zone could be overcome. Thus, the change in the anterior to posterior facial height ratio appears to be due to normal sutural and alveolar growth in the maxilla with a concomitant stimulation of development of the ramus in length. As a tentative explanation, the change in dimension of the vertical components might be the result of lip seal training with the function regulator as an exercise device leading to a postural balance between the forward- and backward rotating muscles. This hypothesis was supported by the findings of Ingervall and Bitsanis.[9] However, Ingervall and Bitsanis suggested the anterior mandibular rotation could be explained by reduced midfacial vertical growth due to increased masticatory muscle strength, instead of increased mandibular condylar length.[9]

The labial bow of the FR-4 contacts the upper incisors when the lips are sealed. Therefore the effect of lip seal training with the FR-4 appliance also becomes apparent by the improvement in axial inclination of the upper incisors.

Poulton holds that the recurrence of some anterior open bite problems is the result of muscle imbalance creating a dentofacial problem. The teeth and jaws may be brought into position of excellent anatomic function, but if the muscles which work together to close the jaws remain weak and flaccid, the open bite may reappear. Corrective therapy in these situations must include work to build up the strength and function of the weak muscles if long term stability is to be achieved.[7]

Proffit suggested that rapid movement functions such as swallowing, chewing and speaking, had little impact on the morphology of the dentition, while the impact of postural alterations leading to changes in lip and tongue resting pressure and posture are significant. Keeping this in view, more emphasis was laid in correcting the tongue position.

The orofacial musculature serves to maintain the vital positional relationships that ensure a functionally adequate volume of the oral, nasal, and pharyngeal spaces. Thus, the myofunctional therapy proves to be crucial treatment modality especially in children with anterior open bite where growth can be modulated.

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Knowledge and Experience about medical emergencies among BDS students in a Dental College, Bangalore

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Abstract

Aim: To evaluate the knowledge and experience about medical emergencies among BDS students in a Dental college, Bangalore.

Methodology: A cross-sectional study was done among 71 students of a dental college including 3rd year, 4th year and house surgeons. Data was collected using a self administered questionnaire.

Results: Among third years (10%) reported that they have seen a case of fainting, 31% was aware of the emergency drugs to be used in an emergency drug kit and 7% has used oxygen face mask, 11(38%) had used disposable syringe. Among fourth years 26% and out of 19 interns 5 (26%) reported that they have encountered syncope in their year of study. 65% and 52% of the fourth years and interns respectively reported that they were aware and confident enough to use glucose in an emergency situation.. No one among the third years had received any training, 70% of fourth year students has received at least 5 hours of training and 94% has received at least 5 hours of training..

Conclusion: Syncope is the commonest medical emergency event. Dental students had a superficial knowledge of medical emergencies, drugs and equipments. Emphasis is placed on the need for more medical emergencies training to be offered, to increase knowledge and confidence of dental students in the management of medical emergencies.

Key words: Anterior open bite, Frankel IV appliance, Habit breaker appliance

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Introduction

Life-threatening emergencies can occur anytime, anywhere and to anyone. Such situations are somewhat more likely to occur within the confines of the dental office due to the increased level of stress which is so often present. For example, Fear and anxiety may make these patients prone to medical emergencies such as syncope and hyperventilation.[1]

Effective management of an emergency situation in the dental office is ultimately the dentist's responsibility. The lack of training and inability to cope with medical emergencies can lead to tragic consequences and sometimes legal action. For this reason, all health professionals including dentists must be well prepared to attend to medical emergencies. Providing basic life support (BLS) is the dentist's most important contribution until definitive treatment for a medical emergency can be given[2].

The extent of treatment by the dentist requires preparation, prevention and then management, as necessary. Prevention is accomplished by conducting a thorough medical history with appropriate alterations to dental treatment as required. The most important aspect of nearly all medical emergencies in the dental office is to prevent, or correct, insufficient oxygenation of the brain and heart. Therefore, the management of all medical emergencies should include ensuring that oxygenated blood is

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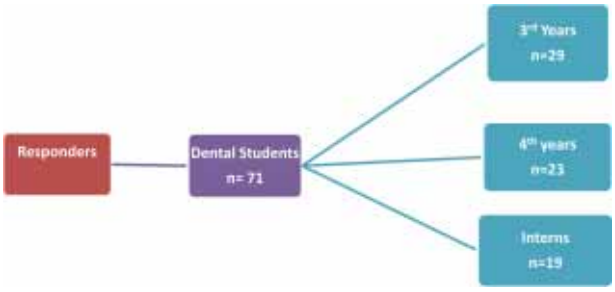
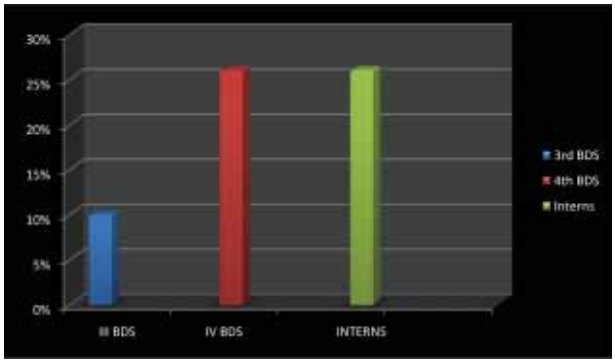


Fig. 1 Overview of responders



Graph 1 *According to exposure of medical emergencies*

being delivered to these critical organs. This is consistent with basic cardiopulmonary resuscitation, with which the dentist must be competent. This provides the skills to manage most medical emergencies, which begin with the assessment, and if necessary the treatment of airway, breathing and circulation (the ABCs of CPR). Usually, only after these ABCs are addressed should the dentist consider the use of emergency drugs[3].

Few studies have assessed how competent dentists consider themselves in managing medical emergencies, and very few studies to our knowledge have reported studies involving fresh dental graduates. Bearing in mind that dental students have little understanding of medical emergency management and that there is very little in-depth data about the importance dental students place on acquiring competence in this area of patient care, the purpose of this study was to evaluate the knowledge, experience and perceptions about medical emergencies amongst dr. Syamala Reddy Dental College students of Marathahalli, Bangalore.

Material & methods

A cross sectional questionnaire approach was chosen to probe dental students' knowledge, experience and perceptions of medical emergency in the dental office. This research was conducted at Dr. Syamala Reddy Dental college hospital and research centre, Bangalore, India during the academic year 2013.

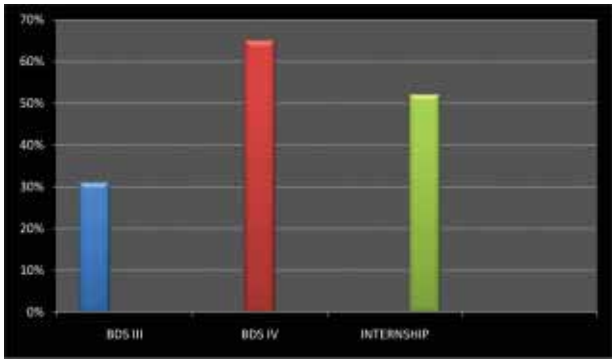
The study was approved by the ethical committee of Dr Syamala Reddy Dental College and Research centre, Bangalore. Informed consent was taken from the students. All the students attending the third year, fourth year and internship were eligible to participate in the study. All the students present on the day of the study were included in the study which formed a total sample size of 71 students, 29, 23 and 19 respectively.

The students who were present at the time of the study were included. The students who were present but not willing to participate in the study was excluded. The data obtained was compiled systematically, transformed from a pre-coded questionnaire to a computer and a master chart was prepared for the data analysis using the statistical package SPSS software. Descriptive statistics that included percentages were calculated for each of the categories.

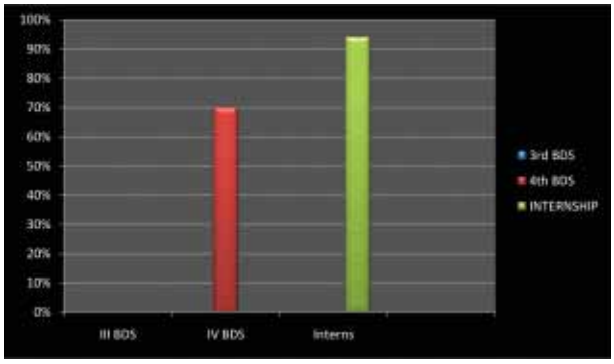
Results

This cross sectional study was undertaken to evaluate the knowledge, experience and perceptions about medical emergencies amongst Dr. Syamala Reddy Dental college students of Marathahalli, Bangalore. The study population consists of 71 students of 3rd, 4th and internship (Fig. 1).

Out of 29 third yr students, 3(10%) reported that they have seen a case of fainting once in their year of study. Out of 23 fourth year students, 6(26%) and out of 19 interns 5 (26%) reported that they have encountered syncope in their year of study. (Graph1). Out of 29 third year students 9(31%) was aware of the emergency drugs to be used in an emergency drug kit. Out of 23 fourth year students 15(65%) reported that they were aware and confident enough to use glucose in an emergency situation. Out of 19 interns 10 (52%) reported that they were aware and confident to use glucose and 5 (26%) were aware and confident to use oxygen. (Graph 2). Among third year students 2(7%) has used oxygen face mask, 11(38%) had used disposable syringe. Among fourth year students 17 (74%) has used oxygen face mask, 11(47%) had used disposable syringe and among interns 12 (63%) has used oxygen mask and disposable syringe. According to the hours of medical emergency training received no one among the third years had received any training, 70% of fourth year students has received at least 5



Graph 2: *Awareness Emergency drugs among the study population*



Graph 3 *Study population according to number of hours of medical emergency training received.*

hours of training and 94% has received at least 5 hours of training (graph 3). All the students expressed a need for getting medical emergency training. All students (100%) reported that they will terminate the treatment and activate emergency services when they come across an emergency situation on dental chair.

Discussion

Medical emergencies can be alarming to any clinician but these situations are less alarming if proper preparations are made. Medical emergencies occur in dental practice more frequently. Fortunately, serious medical emergencies in dental practice are not common but they are all the more alarming when they occur. A thorough patient history can draw the practitioner's attention to potential medical emergencies that could occur. An effective management of an emergency situation in the dental office is ultimately the dentist's responsibility. Although a number of studies have been carried out which sought to ascertain the emergency drugs and equipments, the lack of training and inability to cope with medical emergencies can lead to tragic consequences and sometimes legation action[4, 5, 6].

Few studies have assessed how competent dentists consider themselves in managing medical emergencies[7,8,9,10] and very few studies have reported studies involving fresh dental graduates. This study was done to learn the experience of handling medical emergencies, their skills and competency and how well they felt are prepared to manage such events with appropriate use of drugs and equipments in a dental setting.

The results of this study confirmed that the dental students are not capable of competently managing a medical emergency and perceived a need for more intensive education in medical emergencies, and they strongly desire to obtain this knowledge. Although there have been relatively few studies carried out regarding medical emergencies in dental hospitals[11,12,] present study results show that the proportion of specific medical emergency events occurring were similar with those studies.

The most commonly encountered emergencies seen by all the students were syncope/faints, followed by asthmatic and hypoglycemic attacks. This would indicate that the training should be focused on dealing with these emergencies. The respondents in present study had a good knowledge in identifying the four common drugs like adrenaline, glucose, oxygen and glyceryl trinitrate. The knowledge was not at an acceptable level, particularly when discussing drugs like Midazolam, prednisolone and chlorpheniramine maleate and very few respondents recognized these as being essential drugs.

Similar results were found when investigating level of knowledge regarding emergency equipments. Single use syringes, oxygen face mask and blood glucose measurement device were recognized to some extent and lowered knowledge was seen regarding equipments like pocket masks, portable suction and self inflating child and adult bag valve mask[13,14].

The confidence in the use of drugs and equipments mentioned were at a very lower level than the knowledge for all the drugs and equipments mentioned. This suggests that although training is received in the theoretical aspect of emergencies, participants are not particularly confident to treat emergencies and may require further practical training.

From the responses regarding the number of hours of medical emergencies training undertaken in the undergraduate curriculum, it is evident that there should be more definitive guidelines regarding the number of hours of training is recommended. No one from the 3rd year, 70% from the 4th years and 94% from the internship had undergone medical emergency and

basic life support (BLS) training for less than 5 hours which was very low. The result may be due to the lack of definitive guidelines about the training with medical emergencies in the dental curriculum

Overall in the study, a large number of students stated that they did not know how to proceed in those situations even though they received training in the management of medical emergencies at some time, they expressed the need for further medical emergencies training.

There has not been any published data regarding emergency drugs and equipments recommendations against which results can be compared. The guidelines differ in recommended drug and equipments, but only when a direct comparison is made between commonly recommended emergency drugs conclusions can be drawn.

Conclusion

Dentists are members of the medical profession and should be confident in dealing with emergencies which may arise during their work. However our results indicate a worrying picture of the level of competence which the dental graduates have in dealing with emergencies. Both quality and volume of medical emergencies training which dental studies receive should be assessed and improved, to ensure the safety and well being of the public at all times.

Further studies should be carried out in various other medical, dental and paramedical institutions and the awareness among the students and faculty should be assessed. The participation of educational institutions to improve the training of students and professionals for CPR and other medical emergencies that can occur in the dental office is also necessary. Also steps need to be taken to create awareness in almost all corners and sectors of our society, with the intention of creating numerous basic life support responders.

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Intraoral Lipoma

* Merin George, * Leena Johnson, ** Giju Baby George, *** Karthiga Kannan,
**** Sheeba Padiyath, ***** Rupak Sethuraman, ***** Charis Chandy Joseph

Abstract

Lipoma is the most common benign tumor occurring at any anatomical site where adipose tissue is present, though its occurance is relatively uncommon within the oral cavity and oropharynx. Oral lipoma mostly affects the buccal mucosa and may result in functional and cosmetic disabilities. Oral lipomas are seen as soft, smooth-surfaced nodular masses less than 3 cm in size. Typically the tumor is asymptomatic unless traumatized or unless it attains large proportions. This article describes a case of a 50 year old male with a lipoma occuring in the buccal mucosa.

Key words: Benign, Buccal mucosa, Lipoma.

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Introduction

Roux was the first to give a description of an oral lipoma[1] in 1848; he referred to it as a "yellow epulis". Lipomas are classified under benign mesenchymal neoplasms and rarely occur in the oral cavity[2] and is more common in males than females (1.5: 1)[3]. The exact etiology of lipomas is uncertain. Only 4.4% of all benign oral soft tissue tumors turn out to be lipoma. Intraorally it affects the buccal mucosa and vestibule more commonly compared to other regions of the oral cavity. Lipomas are usually soft, well circumscribed, mobile, slow growing, and asymptomatic[4] and affect patients mostly are 40 years of age or older[5].

Case report

An 50 year old male patient reported to the department of Oral Medicine and Radiology with a chief complaint of a swelling on the left cheek. The swelling was present since 5 years. It was of a gradual onset and slowly increased to the present size. The past dental, medical and family history were non contributory.

On general examination the patient appeared to be moderately built and nourished and the vital signs were well within normal limits. On extra oral examination there was no gross facial asymmetry. The intra oral examination revealed a well defined round pedunculated swelling measuring 3 x 2 cm present in relation to the left buccal mucosa, opposite to the first molar tooth. It was seen to extend antero posteriorly about 3cm from the lip commisures. The surface of the swelling appeared to be pink in color. It was soft in consistency and non tender. It was non compressible and non reducible and not fixed to the underlying tissue. Based up on the history and the clinical findings, the provisional diagnosis was arrived at was an irritation fibroma in relation to the left buccal mucosa.

An excisional biopsy was performed under local anesthesia and sent for histopathological examination. The eosin and hematoxylin section showed numerous areas of adipocytes with peripherally placed nuclei. The adipocytes were arranged in a lobular pattern. Areas of collagen fibers with fibroblast and fibrocytes were also evident. The peripheral area showed a well circumscribed capsule. The overlying parakeratinized stratified squamous epithelium appeared to be normal. The final diagnosis was given as a lipoma in relation to the left buccal mucosa.

Discussion

Histologically, lipomas can be classified into the following

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Fig. 1 Intra oral view

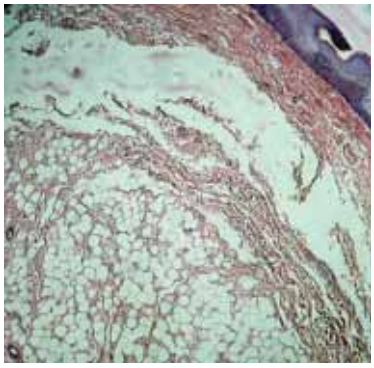

Fig. 2 Histopathological section viewed under 10 x magnification

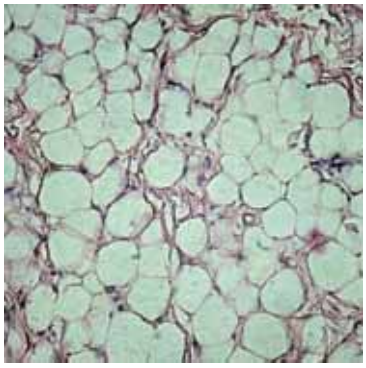

Fig. 3 Histopathological section viewed under 40 x magnification

microscopic subtypes: simple lipomas, fibrolipomas, spindle cell lipomas, intramuscular or infiltrating lipomas, salivary gland lipomas, myxoid lipomas, and atypical lipomas[6]. The most common of these is the fibrolipoma, which is characterized by a significant fibrous component intermixed with the lobules of fat cells. The angiolipoma consists of an admixture of mature fat and numerous small blood vessels. Myxoid lipoma exhibits a mucoid background and as a result is often in the danger of being confused with myxoid liposarcomas. The spindle cell lipoma is another variant that demonstrates variable amount of uniform appearing spindle cells in conjunction with a more typical lipomatous component. Pleomorphic lipomas are characterized by the presence of spindle cells and bizarre hyperchromatic giant cells. Intramuscular lipomas are often seen to be more deeply situated and have an infiltrative growth pattern that extends between the skeletal muscle bundles[2].

A lipoma is a benign slow growing neoplasm composed of mature fat cells. The most common locations of lipoma in the oral cavity have been reported to be in the buccal mucosa, as seen in our case, as it is a region abundant in fatty tissue. The hard palate has the least incidence as it contains very little fatty tissue and the incidence of a lesion here is quite low[7].

Conclusion

Most of lipomas develop in the subcutaneous tissues but deeper tissues may be involved as well, the oral cavity is not commonly affected. Surgical resection is the main treatment for lipoma. The complete resection should be emphasized during the first surgical operation, which is the key factor in order to avoid recurrence.

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Herpes Zoster affecting the ophthalmic and maxillary divisions of the trigeminal nerve

* Jeena Sebastian, ** Jayaprasad Anekar, *** Raj.A.C., **** Sandeepa.N.C.

Abstract

Herpes zoster also known as shingles, is a painful vesicular rash resulting from reactivation of Varicella Zoster virus which causes chicken pox. This case report describes a case of Herpes Zoster in a 55yr old male patient with a clinical presentation of diffuse swelling of the left eyelid and middle third of the face.

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Introduction:

Herpes zoster also known as shingles, is a painful vesicular rash resulting from reactivation of Varicella Zoster virus which causes chicken pox. Oral and facial lesions result from Herpes Zoster of the trigeminal nerve. Shingles is regarded as a self limiting condition. However, in patients of Herpes zoster unnecessary tooth extraction and endodontic treatment is carried out due to the incorrect diagnosis. Development of complications such as post herpetic neuralgia, corneal scarring and blindness due to involvement of ophthalmic branch are the challenges to oral physician.

Case report

A 55 yr old male patient reported to the Dept of Oral medicine KVG Dental College Sullia, with the chief complaint of pain on the upper left back tooth since 1 week and swelling of the left side of the face since 3 days. Patient had severe continuous type of pain and mild fever. After 2 days of toothache, blisters appeared on the left side of the face. Swelling was noticed after 2 days of appearance of vesicles. Swelling had a gradual onset and progression.

There was no relevant medical and dental history. Personal history and family history were not significant. Patient was moderately built and nourished.

On extra oral examination, a diffuse swelling was present on the left side of the face with edematous upper and lower eye lid. Swelling was extending superioinferiorly from the upper eyelid to the lower border of the mandible, antero posteriorly from the medial canthus of the eye to the anterior border of the zygomatic arch. Surface of the swelling was shiny and erythematous. Multiple vesicular eruptions and crustations were seen on the ala of the nose, nasolabial fold region, philtrum and nostril (fig. 1). Patient was unable to open the eye and watery discharge was noted. A solitary vesicle was present on the inner side of the upper eyelid (fig. 2).

On Intraoral examination, there was erythema of upper labial and buccal mucosa. Ulcer of size 4x2mm was noted on the left side of hard palate near to midline in the premolar region. Ulcer had an erythmatous halo and floor had yellowish slough. Two pinpoint ulcers were noticed adjacent to it (fig. 3). Hard tissue examination revealed generalized periodontitis.

Prodromal symptoms, presence of unilateral facial and intraoral swelling, encrustations and ulcers not crossing the midline, segmental distribution, absence of any dental pathology led to a diagnosis of herpes zoster of ophthalmic and maxillary division of trigeminal nerve.

Blood sugar level was normal and test for HIV was negative.

Patient was given Acyclovir (800mg 5 times daily for 7 days), ceftriaxone injection to prevent any secondary infection (1gm IV BD), in the hospital setting. Patient was also referred to ophthalmologist for the evaluation of eye involvement.

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Fig. 1 Showing multiple vesicular eruptions and crustations on the ala of the nose, nasolabial fold region, philtrum and nostril.

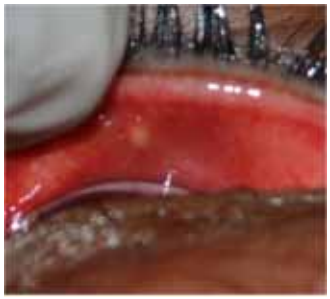

Fig. 2 Showing pustule on the inner side of the upper eyelid.

Fig. 3 Showing ulcers on the left side of hard palate near to midline in the premolar region.

Fig. 4 showing resolution of the lesions.

Patient was discharged from the hospital after 10 days following uncomplicated recovery. (fig. 4)

Discussion

Herpes zoster is the reactivated form of Varicella Zoster virus, the same virus which is responsible for chicken pox. Herpes zoster commonly known as 'Shingles' from the Latin word **cingulum** means **Girdle**. This is because a common presentation of Herpes Zoster involves a unilateral rash than can wrap around the waist or torso like a girdle.[1]

Varicella zoster virus is responsible for two common infectious diseases: chicken pox and shingles. Chicken pox is the primary infection. After the initial infection the virus remains dormant until there is reactivation that may occur several decades later. The subsequent reactivation is HERPES ZOSTER.[2]

Typically Zoster begins with a prodrome of headache, photophobia, malaise, shooting pain, paresthesia, burning and tenderness along the course of affected nerve. Unilateral vesicles on an erythematous base appear in clusters, chiefly along the course of affected nerve giving the characteristic clinical picture of single dermatome involvement. Some lesions probably spread by viremia occurring outside the dermatome.

Herpes zoster may affect any sensory ganglia and its cutaneous nerve. The nerve most commonly affected are C3, T5, L1, L2 and the first division of trigeminal nerve. Most of the infections affect dermatomes of T-3 to L-2 but 13% of patients present with infections involving any three branches of the trigeminal nerve.

When there is characteristic clinical picture of HZ presenting with pain and unilateral vesicles, the diagnosis is straight forward. It is a diagnostic dilemma during the prodromal period when there is absence of lesions. Unnecessary surgeries have been performed because of the diagnosis of acute appendicitis, cholecystitis or acute pulpitis. Occasionally HZ may occur with pain along the course of the nerve but without the appearance of dermatome lesions, a condition known as *zoster sine herpete,* which again is a diagnostic problem.[3]

Herpes zoster is contagious and well spread via direct contact with an infected person. Virus infects the cells of the respiratory tract or conjunctival epithelium and is carried through the body via the blood stream and lymphatic system. It is then spread from the capillary epithelium to the epidermis where the viral replication destroys the basal cells.[2]

Oral and facial lesions result from HZ of trigeminal nerve (V). Involvement of the first division of trigeminal nerve V1 lead to lesions on the upper eyelid, forehead and scalp; lesions on the midface and upper lip with V2; lesions on the lower face and lower lip with V3 involvement. V1 involvement may occasionally lead to acute retinal necrosis and should be managed by an ophthalmologist.[4] With involvement of V2, patient experience a prodrome of pain, burning and tenderness on the palate or gingiva on one side followed by appearance of painful, clustered 1 to 5mm ulcers. Involvement of V3 results in ulcers of tongue and mandibular gingiva. Oral soft tissue vesicular eruptions are more persistent and lesions extend more frequently into the underlying bone causing osteonecrosis and tooth exfoliation especially in patients with HIV infection.[5]

The prodromal stage where there is absence of vesicles and ulcers may lead to incorrect diagnosis of pulpitis which can lead to unnecessary endodontic treatment. HSV infections appear in a similar fashion and if localized and mild, it may be mistaken for HZ; Culture differentiates between the two. Other blistering or ulcerative disease like pemhigus or pemhigoid are chronic and do not present unilaterally.[6]

Investigation includes direct microscopy-stained smears from the base of the early vesicles show multinucleated giant cells and type A intranuclear inclusion bodies. Diagnosis of HZ can be confirmed by viral culture, direct immunoflouroscence assay and PCR technique. Viral culture is possible but VZ virus is labile and difficult to recover from swabs of cutaneous lesions. A direct immunoflouroscence assay is more sensitive. PCR is useful for detecting VZ virus DNA in fluid tissues.[7]

Management

Conventional treatment options[1]

The objective of conventional therapy is to accelerate healing of the lesions, reduce the accompanying pain and prevent complications. Medications include antiviral agents, corticosteroids, analgesics NSAIDS and tricyclic antidepressants.

Antiviral agents: Although multiple clinical investigations have demonstrated efficacy in reducing both duration of the rash and severity of the associated pain, benefit has been demonstrated in patients receiving treatment within 72 hrs after onset of the rash. Efficacy in preventing post herpetic neuralgia is not as definitive as studies showed only moderate benefit in reducing its development. Three most common antiviral agents used are Acyclovir, Valacyclovir and Famciclovir. These medications are generally well tolerated with some common side effects like nausea, abdominal pain, headache and vomiting.

Corticosteroids: They are commonly been used for pain management in HZ, although clinical trials have showed inconsistent results for reducing the development of post herpetic neuralgia.

Analgesics and NSAIDS: Individuals with mild to moderate pain find satisfactory relief with the use of topical or oral analgesics such as aspirin, acetaminophen or ibuprofen. Several studies have showed that topical aspirin preparations can provide effective temporary relief in case of acute herpetic neuralgia and post herpetic neuralgia. In patients with severe pain, use of narcotics may be indicated. Use of nerve block injections is another option. Local Anesthetic may be injected around the affected nerves provides the pain relief typically lasting 12-24 hrs. However the effectiveness of nerve block for reducing or preventing post herpetic neuralgia is questionable.

Tricyclic antidepressants (TCA): Low doses TCAs have been used for post herpetic neuralgia but they require at least 3 months for positive results.

Natural treatment options[1]

An underlying goal for employing natural therapies is to strengthen cell mediated immunity thereby allowing the body's natural defense mechanism to control the virus and prevent recurrence. They effectively manage herpes virus, prevent and treat complication and minimize the risk of developing viral resistance.

Dietary /multiple nutrient effects: When consumed collectively in the form of fruits and vegetables intake showed dose related reduction in the HZ risk.

Vitamin A: An observational trial by High etal demonstrated an association between an increased incidence of hyporetinolemia and increased risk of HZ infection.[8]

Enzyme therapy: studies have concluded that use of trypsin, chymotrypsin and papain are as effective as acyclovir in reducing pain. No data is available with regard to its effect on post herpetic neuralgia prevention.

Other nutritional consideration

Vitamin C, Vitamin E, lysine and zinc have demonstrated potential in the treatment of HZ.

Botanicals with specific efficacy for HZ

Capsaicin is of important in the treatment of post herpetic neuralgia because of its effect on C fiber sensory neurons. These neurons release inflammatory neuro peptide such as substance P that mediates neurogenic inflammation and chemical initiated pain.

Licorice is one of the most widely used herbs in traditional medicine. It has an anti inflammatory, mucoprotectant and antiviral activity. One constituent glycyrrhizin inhibits viral growth but when taken orally converted into glycyrrhetinic acid with loss of systemic antiviral effects. However as a topical it may be beneficial in HZ.

Following botanicals like *honey, aloe vera, St Johns wort* etc are used with its benefit, should be noted as either speculative or anecdotal.

Other treatment options [1]

Traditional Chinese medicine includes *acupuncture* which can be considered for pain management. Studies demonstrate that Chinese medicine when used in conjunction with conventional therapies give a better result in the management of post herpetic neuralgia.

*TENS: (*Transcutaneous electrical nerve stimulation) Use of combination therapy consisting amitryptilline, topical capsaicin and TENS was recommended for the treatment of post herpetic neuralgia over antiviral therapy.[9]

Vaccine

Improved prevention and treatment strategies, including better vaccines are needed to reduce the

disease burden of zoster. ZOSTAVAX or other active or inactive formulations of zoster vaccine should be evaluated in additional cohorts of persons (e.g. persons aged 50–59 years and immuno suppressed persons at the highest risk for zoster and its complications). A better understanding of immunologic correlates of protection against zoster would help facilitate the development and evaluation of such new zoster prevention strategies.[3]

Conclusion

It can be safely stated that early diagnosis and prompt management of herpes zoster infections can go a long way in reducing the discomfort of the patient. The emergence of these infectious states in the AIDS spectrum must make the clinician more vigilant to look for any underlying cause and proceed with the management strategies. Management options like patient isolation, local management of skin lesions, control and elimination of pain, limitation of the extent, duration and severity of the disease are available to the clinician for the treatment of HZ and post herpetic neuralgia, albeit with variable degree of success. A rigid follow-up schedule is also essential to avoid long term morbidities.

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NASO maxillary hypoplasia Binder's syndrome

* P.J. Antony, ** Sankar Vinod, *** Muhammed Shibin P., **** Sujeev N.

Abstract

Nasomaxillary hypoplasia or Binder's syndrome is an uncommon malformation characterized by midface hypoplasia and a flattened nasal profile. A 6 year- old boy with nasomaxillary hypoplasia (Binders syndrome) presented to the department with deficient midface, upper anterior crossbite and relative mandibular prognathism. The principal clinical features of the syndrome, the diagnosis and management of this case are discussed in this article.

Keywords: Nasomaxillary dysplasia, Binder's syndrome

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Introduction

Naso maxillary hypoplasia was first defined as a distinct clinical syndrome by Binder[1] in 1962 even though its essential features were initially described by Noyes[2] 1939. Binder reported three cases and recorded six specific characteristics:

- Arachinoid face
- Abnormal position of nasal bones
- Inter maxillary hypoplasia with associated malocclusion
- Reduced or absent anterior nasal spines.
- Atrophy of nasal mucosa
- Absence of frontal sinus (not obligatory)

Children with this syndrome are recognized easily as a result of its classical appearance. The characteristic features of this syndrome are hypoplastic mid face, flattened nose, convex upper lip with a broadened philtrum, acute nasolabial angle due to the deep fold or fossa between the upper lip and nose, crescent or semi lunar shaped nostrils due to the short collumella.

The current literature provides a limited source of information about cases with maxillonasal dysplasia despite the frequent occurrence of dental malocclusion in relation to the syndrome. The aesthetic and functional problems associated with this syndrome have been approached orthodontically and surgically through different methods.

Binder's syndrome can also be combined with other malformations. Olow – Norderam M and Radberg CT [3] reported 44.2% of their studied sample to have associated cervical vertebrae malformation. In severe cases the syndrome is associated with true mandibular prognathism, which requires combination of both orthodontic and surgical intervention for proper treatment.

Case report

A 6 year old male patient reported to the department of Orthodontics and Dentofacial Orthopaedics with a chief complaint of a depressed face and a small nose.

Extra oral examination revealed an apparently symmetrical face with a concave profile, small sized nose, short columella, an entirely depressed nasal bridge and midface deficiency. The alar base width was 32mm and the inter canthal distance was 28 mm. (Fig 1-4)

Intraoral examination showed early mixed dentition with an anterior crossbite, reverse overjet of 2mm and mesial step deciduous molar relation. (Fig 5-8)

Radiographic findings: An orthopantamogram (Fig 9) revealed normal development of teeth and the absence of any supernumery teeth.

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Fig. 1 Extra oral frontal view

Fig. 2 Extra oral right lateral view

Fig. 3 Extra oral oblique lateral view

Fig. 4 Extra oral left lateral view

Fig 5 Intra oral frontal view

Fig. 6 Intra oral right buccal view

Fig. 7 Maxillary occlusal view

Cephalometric analysis (Fig 10, Table I & II) confirmed a Class III skeletal pattern with an ANB value of -1°, Wits appraisal of -6 mm and McNamara analysis showed prognathic mandible (Effective mandibular length is 96mm compared to the effective maxillary length of 63mm). Anterior cranial base dimensions are decreased and the maxilla was smaller both vertically and antero-posteriorly. A lateral cephalogram also showed under developed frontal sinus and the absence of anterior nasal spine.

Treatment plan: Considering the age of the patient and the handwrist radiographs (Fig 11), we planned to protract the maxilla and promote maxillary anterior growth using reverse pull headgear and later after completion of growth, to perform surgical correction of small sized nose (rhinoplasty).

Discussion

The characteristic features of Binder's syndrome includes midface hypoplasia, small nose and convex lip. The most notable sign is the absence of the anterior nasal spine as seen on radiographic examination. The nose appears short and vertical due to absence of the bony spine resulting in inadequate bony support around the nasal septum. As a result of inadequate nasal support, the upper lip gets depressed into the nasal junction leading to a convex upper lip and groove at the nasolabial junction. The upward sweep of a thinned labial alveolar bone is seen as a gentle curve without any clear demarcation as it meets the nasal floor.

Researchers have suggested that Binders syndrome is a nonspecific abnormality of the nasomaxillary regions. The exact etiology is unknown though familial reasons have been suggested. The occurrence of this syndrome has now been found to be linked with genetic mutation[4]. Binder[1] proposed that the presence of hypoplastic nasomaxillary region and nasal cartilage is due to the disturbance of the prosencephalic induction center in embryologic growth and that it is not a hereditary basis. Resche et al[5] proposed that cervical spine anomalies in Binder's syndrome induces the development of vertebra and premaxilla in fetal life. Converse et al.[6] explained how the cartilaginous structure, synchondroses and driving forces of midface growth when adversely affected in development, result in a hypoplastic nasomaxillary complex. These mechanisms would indicate a primary defect in the genome responsible for cartilaginous and skeletal development at a certain time in utero.

Noyes[2] and Hopkin[7] raised the question about

Fig. 8 Mandibular occlusal view

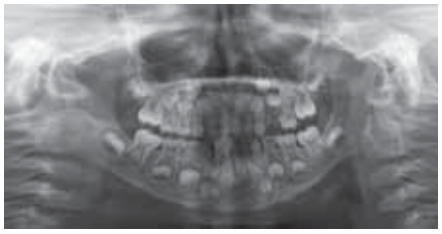

Fig. 9 OPG showing normal development of teeth

Fig. 10 Lateral cephalogram showing absence of anterior nasal spine.

Fig. 11 Handwrist radiograph

Table I: *Pre treatment cephalometric evaluation –Hard tissue.*

Parameter	*Variable*	*Pre Rx*
Skeltal	Sagital	
	SNA	79^0
	SNB	80^0
	ANB	-1^0
	WITTS	-6 mm
	Vertical	
	FMA	35^o
	GoGn-SN	34^0
	Y-axis	63^o
	Jarabaks ratio	63%
	Upper facial height	110
	Lower facial height	60
	Horizontal	
	Effective max length	63mm
	Effective man length	96 mm
Dental	U1– NA	5 mm / 18^0
	L1 – NB	7mm / 24^0
	IMPA	85^0
	LI - APog	+ 6mm
	Interincisal angle	140^o
	Over jet	-2 mm

Table II: *Pre treatment cephalometric evaluation –Soft tissue.*

Parameter	*Variable*	*Pre Rx*
Soft tissue	Nasolabial angle	54
	Upper lip to E-line	+3 mm
	Lower lip to E-line	+ 8 mm
	H-angle	15^0

traumatic birth (forceps delivery) but this was ruled out due the paucity of confirmed injury during delivery. It was also postulated that hemorrhage, infection or inflammation around the nasal apparatus in fetal or infant development could also result in nasomaxillary hypoplasia, but there are very few cases (two out of 115 reviewed) that had such a history. Chemicals like lithium, ethanol or the therapeutic use of warfarin or phenytoin can cause vitamin K-deficiency during human pregnancy. Three cases of Binder's syndrome are reported with the pregnancy histories[8] was associated with warfarin exposure, phenytoin exposure and alcohol abuse. It was also proposed that prenatal exposure to the vitamin K-deficiency causing agents can cause Binder's syndrome. It is generally agreed that the lack of population frequency data has affected the evaluation of aetiological findings[9].

Mostafa et al[10] studied the craniofacial growth of x-linked hypophosphatemic mice and noticed that they had short skulls, decreased upper facial height and deformed naso-frontal and premaxillary sutures and short mandibles with the most striking feature of decreased nasal growth. The implication of an underdeveloped midface, and particularly the nose, may suggest a mechanism operable in patients with the same deformity. However, no serum or bone chemistry abnormalities have been demonstrated in binder's syndrome.

The early start of orthodontic treatment by external traction devices promotes maxillary anterior growth.[11] Nasal surgery can be undertaken with columella lengthening, alloplastic implants, or bone grafts to perialar area and nasal tip when the child become more aware of his appearance.[4,11,12] Augmentation of implants and grafts may be done as child grows. Lefort I & II osteotomies with bone grafts can be done for the correction of

nasomaxillary retrusion when the growth has ceased, involves plastic and orthognathic procedures of the nasomaxillary and occlusal complex. [4,11,12,13,14] Secondary rhinoplasties, with additional bone grafts[11] or soft tissue[15] to fill in defects, may be indicated. Based on the severity of the deformity and age of the patient there have been many protocols presented. Munro et al[4]. emphasized that surgery must be directed at three defects in Binder's syndrome: 1) The short maxilla with resulting malocclusion; 2) Perialar flatness; and 3) The hypoplastic nose with decreased columella.

Historically, lengthening the nose was done surgically by soft tissue advancement procedures, but drawbacks of these procedures were that they do not correct the receded maxilla[6]. For the advancement of the nasomaxillary complex enbloc, Converse et al[16] described a pyramidal naso-orbito-maxillary osteotomy, placement of bone grafts and a VY skin advancement. Disadvantages of this approach are that it leaves an external scar and a resultant dental discrepancy requiring orthodontic or prosthodontic treatment.

Henderson and Jackson[14] have described a Le Fort II osteotomy that carries the entire dentoalveolar segment forward with the nasomaxillary complex. Two cranially-based nasal flaps provide soft tissue coverage. For placement of the bone grafts and to lengthen the columella, a nasolabial incision was used. A nasal tip advancement of up to 2 cm has been claimed[9].

Modified LeFort II osteotomy and a VY glabellar incision for skin advancement in patients with normal occlusion that does not involve the dentition was described by Psillakis et al.[17] A sliding osteotomy of the nasal skeleton through labial sulcus and intranasal incisions for nasal lengthening was adovated by Siemssen and Siemssen.[18] Bone grafts can also be placed from this approach to augment the anterior maxilla and nasal tip projection.

Munro et al[4] used combined Le Fort I and/ or II osteotomies through bicoronal and/or intraoral approaches without external skin incisions. They claim the nose can be advanced up to 15 mm. Bone grafts are then placed as indicated.

Conclusion

The manifestation of Binders syndrome is frequently evident from an early age. The facial deformity that results often poses a significant esthetic and functional dilemma that needs to be countered with a carefully planned treatment that utilizes the combined skills and knowledge of the two fields of Oral and Maxillofacial Surgery and Orthodontics. A well executed treatment plan can significantly contribute to the improved psychosocial well being and a general improvement in the quality of life of the patient.

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Hereditary Ectodermal Dysplasia

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**** Vijeesh Lee Thachappilly, *****Leena Johnson Arakkal

Abstract

Hereditary ectodermal dysplasia is characterized by defective formation of one or more structures derived from the ectoderm. The pattern of inheritance is variable. The X-linked recessive is the most common inheritance pattern. Males are affected severely, while females show only minor defects. Hypohidrotic ectodermal dysplasia is the most common. The teeth shows abnormalities in the form of number, size and shape. A multidisciplinary approach can have a best therapeutic role in these patients. Here we present the case of an eight year old female with hereditary ectodermal dysplasia.

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Introduction

Hereditary ectodermal dysplasia (HED) represents a hereditary disease characterized by deformity of at least two or more of the ectodermal structures, hair, teeth, nails and sweat glands[1]. Thurman published the first report of a patient with HED in 1848[2,3]. The ectodermal dysplasias (EDs) are congenital, diffuse and non progressive disorders[4]. The etiology of ectodermal dysplasia appears to be genetic in nature[3]. It is characterized by the triad of signs which comprises of sparse hair (atrichosis or hypotrichosis), abnormal or missing teeth (anodontia or hypodontia) and inability to sweat due to lack of sweat glands (anhidrosis or hypohidrosis)[3]. The teeth are reduced in number, the incisors are often tapered, conical or pointed and the molars might be of a reduced size[5].

Case report

The case report is based on an eight year old female who presented to the department with the chief complaint of multiple missing permanent teeth. On eliciting the history, the parent reported that some of the deciduous teeth of the child had also been missing. The patient had also undergone consultation for unexplained body heat some time back. The rest of the history was noncontributory.

Physical examination revealed fine, sparse, light body and scalp hair (Fig. 1), scanty eyebrows and eye lashes, mild frontal prominence, prominent supraorbital ridges, dry skin and protuberant lips (fig. 2). There were pigmented striae over the nose and circumoral area. Her finger and toenails were normal.

Intraoral examination revealed multiple missing teeth (fig. 3&4). The teeth present were 16, 55, 12, 11, 21, 22, 65, 26, 36, 75, 74, 73, 32, 31, 85, 46. There was midline diastema between 11 and 21. The provisional diagnosis was made as partial anodontia.

An orthopantamograph (fig. 5) of the patient revealed the above mentioned teeth and tooth buds of 47 and 37. 16, 26, 36 showed the presence of taurodontism. 22, 12, 31 showed conical shape. The oral and skin findings were consistent with hypohidrotic ectodermal dysplasia. The patient was referred to the department of pedodontics for further treatment.

Discussion

Ectodermal dysplasia (ED) is defined by the National Foundation for Ectodermal Dysplasia as a genetic disorder in which there are congenital birth defects of two or more ectodermal structures[2]. The term was coined by Weech in 1929[6]. The incidence reported is 1 in 100,000 births[6,2,3,7,5]. Males are often

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Fig.1 Lateral profile showing fine, sparse, light scalp hair.

Fig. 2 Frontal profile of the patient.

Fig. 3 Intraoral examination revealing multiple missing teeth in the upper arch.

more severely affected[7]. The complete syndrome does not occur in females but they may show dental defects, sparse hair, reduced sweating and dermatoglyphic abnormalities[3]. This incomplete presentation can be explained by the Lyon hypothesis, with half of the female patient's X chromosomes expressing the normal gene and the other half expressing the defective gene[8]. Our patient was a female where there was manifestations of the above mentioned conditions except dermatoglyphic abnormalities.

The pattern of inheritance can be in any form of several genetic patterns including autosomal-dominant, autosomal-recessive and X-linked modes[8]. Previously literature suggested that hypohidrotic ectodermal dysplasia showed an X-linked inheritance pattern with the gene mapping to Xq12-q13[5,8,10] and the hydrotic type is inherited in an autosomal dominant pattern[5]. Mutations in EDA, EDAR and EDARADD genes are now identified as the probable cause for hypohidrotic ectodermal dysplasia preventing the normal interaction between ectoderm and mesoderm and impairing the normal development of hair, sweat glands and teeth[10,11].

Classification of hereditary ectodermal dysplasia is difficult because of overlapping features. A simple attempt made by Nelson included five categories, namely Hypohydrotic (anhydrotic), Hydrotic (Clouston's syndrome), EEC (Ectodactyly ectodermal dysplasia) syndrome, Rapp –Hodgkin syndrome and Robinson's disease[8]. Depending upon the presence or absence of sweat glands, it is divided into hidrotic (Clouston syndrome) and anhidrotic types[8]. In Hypohidrotic or anhydrotic (Christ-Siemens-Touraine syndrome, more common type) in which sweat glands are either absent or significantly reduced in number; Hydrotic (Clouston syndrome) in which sweat glands are normal[5]. In our patient since the sweating was compromised she was categorized under the hypohydrotic type.

The physical features in our case, including fine and sparse hair, scanty eyebrows, frontal prominence, prominent supra orbital ridges, flat nasal bridge and sparse eyelashes of upper and lower eyelids, protuberant lips, unexplained hyperpyrexia and intolerance to heat are in accordance with the findings mentioned in the literature[1,3]. The intolerance to heat is due to the absence of sweat glands[4]. Oral manifestations of HED include partial or complete absence of teeth, alteration in the form, hypoplastic teeth, delayed eruption[7]. In our case there was partial absence of teeth, conical teeth in the upper anterior region with large pulp chamber, midline diastema, congenitally missing teeth and taurodontism which were in accordance with the findings of Geetha et al[10].

This disorder occurs during the first trimester of pregnancy. It affects the dentition if it appears before the sixth week of embryonic life and other ectodermal structures after the eighth week[4,11]. Though laboratory studies are not useful in the diagnosis of ectodermal dysplasias, they are useful in such cases with immunodeficiency where determination of quantitative immunoglobulin levels and T-cell subset populations can be favourable[2,11]. Sweat pore counts, pilocarpine iontophoresis and skin biopsy may document hypohidrosis and a reduction in the number of eccrine glands[2,11]. Prenatal diagnosis using linkage analysis in the tenth week of intrauterine life and patterns of inheritance through gene dx is also documented[11]. Fetal skin

Fig. 4 Intraoral examination revealing multiple missing teeth in the lower arch.

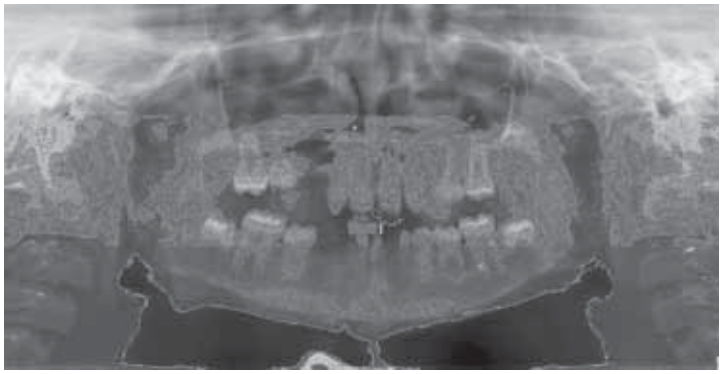

Fig. 5 Orthopantamograph of the patient revealed the above mentioned teeth and tooth buds of 47 and 37. 16, 26, 36 showed the presence of taurodontism. 22, 12, 31 showed conical shape.

biopsy can identify decreased eccrine sweat glands for prenatal diagnosis of hypohidrotic ED[12]. As a future perspective genetherapy using recombinant EDA-A1 has shown potential to be effective in reverting dental problems[11].

The management of affected patients is symptomatic. Patients are advised to avoid overexposure to warm temperatures and vigorous physical activities and to use moisturizers, light clothing, a cool-water spray bottle, air conditioning for environment, use of artificial tears and application of petrolatum for nasal mucosa protection.[12]

Conclusion

Genetic studies is of immense help in identification of various patterns of transmission in hereditary ectodermal dysplasia. The dentist can provide a helping role in improving the orofacial appearance of such cases thereby improving the psychologic and social well being in addition to the functional aspects. Often a multidisciplinary approach can have a best therapeutic role in these patients.

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Orthodontic considerations for a special child

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Introduction

Dentistry for the handicapped has always had an aura of "mystique" surrounding it. The World Health Organization has defined a handicapped person as "one who over an appreciable period is prevented by physical or mental conditions from full participation in the normal activities of their age group including those of a social, recreational, and vocational nature". American Association of Pediatric Dentistry states, a person should be considered dentally handicapped if there is pain, infection or lack of functional dentition which affects the following: a. Restricts consumption of a diet adequate to support growth and energy needs. b. Delays or otherwise alters growth and development. c. Inhibits performance of any major life activity including work, learning, communication and recreation[1].

Criteria for case selection

The criteria for case selection and the final determination as to what type of growth guidance or orthodontic care is to be rendered, must be approached from the viewpoint of each individual case. The handicapped patient may be evaluated thus: (1) What is the severity of the handicap (physical, emotional and or mental?) (2) What is the severity of the developing or existing orthodontic problem? (3) How do the child and those responsible for him evaluate the extent of the developing malocclusion? (4) What is the living situation of the handicapped child? i.e. is he institutionalized or living at home? (5) What is his oral hygiene and caries index?

These questions serve as general guidelines to help in evaluating the case, stressing the relationship between the handicap and the severity of the malocclusion[2].

The Mildly Handicapped

Physical

From an orthodontic view point, a mildly handicapped child is one who has been able to compensate adequately for his disability and appears to be coping well, a well-adjusted blind child or a child with slight to moderate locomotive problems capable of tolerating and helping routine dental care. For all practical purposes, he is considered a non handicapped child unless his handicap may preclude a type of treatment, e.g. it would not be wise to consider full banding for even a mild hemophiliac because of soft tissue trauma from bands, arch wires, and ligatures, whereas a claspless or specially designed removable appliance, such as an activator or oral screen, would be more acceptable. A mildly handicapped child also may be considered a "normal child" for such considerations as space maintenance, space regaining procedures and serial extractions. A medically controlled epileptic, for example, may or may not be a candidate for full banding. If there is any history of a seizure, removable orthodontic appliances would be contraindicated because of the possibility of aspirating or blocking the airway with the appliance during a seizure. The mildly physically handicapped patient is the least complicated patient, as far as treatment considerations are concerned.

Mental

The mildly mentally handicapped patient's treatment will depend mainly on the child's capacity to comprehend and accept the goals and the nature of the treatment. A child who understands and accepts treatment and has established a good rapport with his clinician may actually make an "ideal patient" if parental cooperation is available.

Emotional:

Oral habit control should be undertaken only after consultation with the child's therapist. If the habit is present in association with a skeletal malocclusion, deferring

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treatment from 6 months to one year may not cause any harm[2].

The Moderately Handicapped

Physical

Will have difficulty in tolerating most dental procedures but must be handled with special behavioral control techniques. Treatment under general anesthesia can be considered. In the moderately handicapped group we include the most uncontrolled cerebral palsied individual, the more severely retarded Down's syndrome individual and other syndromes that influence intelligence, muscular control, and coordination. Serial extractions are important consideration for this type of patient as they will not likely be able to tolerate full banding. Therefore, serial extraction in this case will primarily reduce crowding and create better alignments in the anterior segments. This course of treatment should be stressed as a last resort because of the handicap.

Mental:

Patient cooperation and motivation are essential factors related to the success of orthodontic treatment. If a child is not able to comprehend orthodontic care he most likely will not be able to provide cooperation. Therefore to institute treatment to these children is questionable.

Emotional:

The same considerations that qualify and limit orthodontics for the moderately physically and mentally handicapped, apply equally to the emotionally handicapped. However for the child who has a reasonable chance of recovery from/or stabilization of handicaps such as leukemia's and rheumatoid arthritis, extensive treatment should be deferred until the child is in remission, at which time a new evaluation should be made.[2]

Severely Handicapped

Physical:

By definition, in dental sense "severely" means an inability to tolerate or cooperate in the dental chair except under general anesthesia. Only palliative and supportive procedures of a pedodontic nature should normally be carried out for these children unless the total procedure can be done in one general anesthesia appointment such as extractions. Appliances, both fixed and removable are usually not advised.[2]

Charlie, Reddy et al devised an orthodontic appliance for control of chronic drooling in cerebral patients which is similar to an orthodontic retainer in design; it is an intra-oral appliance with full palatal coverage and additional clasps for better retention and anchorage. A moving rolling bead is placed in the posterior aspect of the appliance. The location of the bead is dependent on the swallowing pattern of the child. The one condition about this appliance is that it can be given only to patients above eight years, who can understand the directions of swallow on command and be involved in the explanation of the appliance and its purpose.[4]

Gisela Kleint reported orthodontic treatment in handicapped children, provides a functional and esthetic improvement and increased personal esteem and also facilitates oral hygiene and restorative therapy, and compromises and relapses have to be accepted and devised that treatment should follow stepwise process including

- Habituation and acceptance
- Adaptation to therapy with vestibular screens and removable appliances
- Stepwise application of fixed appliances
- Regulation of dentition by extraction in cases of crowding
- Cooperation with speech therapist and physiotherapist.[5]

Conclusion

Dentistry for the handicapped child involves the utilization of various treatment modalities to achieve the final end point. The purpose is not to delve into the mechanical and technical aspects necessary to effect this goal, but instead to present a rationale for effectively providing care for the population of children in dire need of professional attention.

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Cu-Sil like dentures

* Kurien Varghese

Abstract

Total edentulism is a social stigma. Although complete dentures can solve the problems to an extent many patients are not happy with their dentures. Lack of Retention and stability could be the main reason. Implant supported dentures and fixed partial dentures were able to solve the problem, but the treatment cost is a cause of concern. So the preservation of few teeth should be the major focus today. This helps in maintaining the integrity of the alveolar ridge and also proprioception of the peridontium. Also having their own teeth will be huge psychological advantage on patient. Treatments with transitional dentures are a better option for patients presenting with few remaining teeth and not willing for extraction and also in periodontal compromised condition. There are many ways to treat such patients. Cu-Sil dentures are recent type of denture. A Cu-Sil denture is essentially a complete denture with holes lined with a rubber gasket, allowing the remaining natural teeth to prod through. Presented here are few case reports in which Cu-Sil like dentures are fabricated using chair side short term acrylic based soft liners

Key words: Cu-Sil like denture, rubber gasket, soft liner

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Introduction

Loss of teeth causes adverse aesthetic and biomechanical sequeale, a dilemma that is worse when the patient is completely edentulous and the entire periodontal ligaments is lost. This leads to drastic changes in facial appearance of the patient such as deepening of nasolabial groove, loss of labiodental angle, decrease in horizontal labial angle, narrowing of lips, increase in columella philtral angle, ptosis of the muscle [jowls or witch's chin] etc.[1,2,3] Placement of a removable prostheses in the oral cavity can restore function and aesthetics to an extent, but continuous wearing of the prostheses may produce profound changes of the oral environment that may have an adverse effect on the integrity of the oral tissues, such as psychological trauma, lack of stability, lack of retention, residual ridge resorption, undermined esthetic appearance, compromised masticatory function.[2] So dentists have long recognized the difference that the preservation of teeth helps in Preserving the alveolar ridge integrity and the presence of healthy periodontal ligaments maintains alveolar ridge morphology and also helps in proprioception.[1] Various researchers have concluded in their studies that there is reasonably less resorption of alveolar bone when a few teeth are present as compared to alveolar resorption found in edentulous patients.[8] Dentistry has changed to such an extent that there are several treatment options for patients presenting with few teeth remaining, compromised cases with periodontal involvement and not willing for extraction. If the teeth present are in the maxillary anterior region or in the esthetic zone then careful evaluation of the situation is necessary. Conventional removable partial denture with unesthetic metal clasp may not be appreciated by the patients. Over dentures has its own disadvantage like it cannot be done in all cases and also depends upon the position of the remaining teeth. Covered teeth abutment's environment is not conducive to maintaining plaque free and presence of refractory periodontal diseases are serious deterrents to successful teeth retention outcome.[1] Cu-Sil dentures are a better treatment option in such cases. They are newer type of "transitional" dentures, meaning that they are especially recommended when the remaining teeth are likely to be lost for any reason or in cases where stable teeth are poorly distributed about the

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Fig.1 Partially edentulous maxillary arch

Fig. 2 Partially edentulous mandibular arch

Fig. 3 Processed and finished maxillary denture showing holes

Fig. 4 Processed and finished mandibular denture showing holes

dental arch[4] Transition dentures are a superior option for many such patients with few anterior and posterior teeth remaining. They help to retain patients own teeth and postpone getting all their teeth extracted as it has a traumatic effect on their psychology[5]. A Cu-Sil can stabilize mobile teeth and with care, can extend their lives. It is also easy to replace lost natural teeth on the Cu-Sil denture and the denture can be relined like any other standard denture. In other words, the Cu-Sil denture can eventually be transformed into a regular full denture if the patient loses all the natural teeth. The Cu-Sil denture has holes for natural teeth. These holes are surrounded by a gasket of stable silicone rubber which hugs the natural teeth and allows the rest of the denture to rest against the gums giving the benefit of suction in addition to the mechanical stability offered by the combined splinting effect of the natural teeth.[4] These are especially useful in situations in which the remaining teeth are on the same side or area of the arch. Even a single remaining tooth in the arch can increase the stability of the entire denture several hundred percent over a completely edentulous arch. Here few cases of Cu-Sil like dentures are done using short term chair side acrylic based soft liners [GC soft].[6]

Case report

A 56 year old male patient came to us for replacement for his missing teeth. Oral examination revealed that patient has few teeth remaining in both upper and lower arches [Fig. 1,2]. On clinical and radiographic examination it was noted that the teeth were of grade 11 mobility with generalized recession and the patient was not interested in extraction. Various treatment options like conventional acrylic removable partial denture and implants were explained to the patient. But patient was not able to accept the conventional removable partial denture citing visibility of metal clasp and Implants were rejected because of the cost factor. So a Cu-Sil like dentures were planned for both upper and lower for this situation and short term plasticized acrylic resin based soft liner were used as gasket which surrounds the remaining natural teeth for retention and stability

Clinical procedure

Preliminary impressions of both upper and lower arches were made with irreversible hydrocolloid. Custom trays were fabricated with autopolymerising acrylic resin. Border moulding was done and Secondary impression of the edentulous areas were recorded with zinc oxide eugenol using custom tray and pick up was done with alginate using perforated stock tray. Jaw relation recording, teeth arrangement and try-in procedure and fabrication of the denture were done in routine manner. [Fig 3, 4]

After retrieval, finishing and polishing of the upper and lower removable partial dentures, Relief is provided to permit an acceptable thickness of the chosen material

Plasticized chair side soft relining material [Fig,5] powder and liquid dispensed in a glass container and mixed properly. Using a carrier instrument the soft liner material is carefully added around the created space between the denture and the teeth and adapted properly and placed in the patients mouth and held there for few minutes till the soft liner sets

After setting the denture was removed trimmed if necessary with a sharp scalpel. The same procedure was repeated for the lower denture as well. [Fig 6, 7]

Finished prostheses were tried out in the patient's mouth and it was snugly fitting around the natural teeth and patient was able to insert and remove the prostheses without any difficulty [Fig 8, 9, 10]

Post insertion directions were similar as for any removable prosthesis. As there is likelihood of fungal growth on the soft liner material, exceptional care has to be taken concerning maintenance of excellent oral and denture hygiene. Use of denture cleansers with antimicrobial agents can be suggested.

Fig. 5 G.C chair side autopolymerising soft liner

Fig. 6 Soft liner gasket on maxillary denture

Fig. 7 Soft liner gasket on mandibular denture

Fig. 8 Cu-Sil like denture upper

Fig. 9 Cu-Sil like denture upper

Fig. 10 Cu-Sil like denture lower

Recall was done after 1 week and the soft lined denture was functioning properly as suggested by the patient.

Discussion

Cu-Sil like dentures is intended to safeguard the remaining natural teeth and thus the alveolar bone.[4] They have a remarkable effect on retention and stability of dentures.[9] In addition to this it gives the patient, emotional satisfaction of retaining the natural teeth. Accessory devices are avoided entirely. This treatment modality does not require any tooth preparation and extra patient visit. It can be processed with routine steps or as a chair side procedure, and does not require any special armamentarium and material as Cu-Sil dentures. It also has financial advantage over Cu-Sil dentures.

In this case a chair side plasticized soft liner acrylic resin were used. Soft liners serve to absorb some of the energy produced by the masticatory effect and act as a shock absorber.[6] In this particular case soft liner is made to function as a gasket which surrounds the natural teeth and help the denture against the dislodging forces and ingress of fluid and food materials in between the denture and the mucosa

Soft liners are of two types

1. Acrylic based soft liners.

2. Silicone based soft liners[6]

Silicone based soft liner have no chemical bonding with the acrylic resin and needs adhesive for bonding which may result in bond failure due to failure of the adhesive.[7]

Acrylic based can be of two types 1. chemically cured chair side short term soft liner[6]

2. Heat cured long term soft liner

They have chemical bonding with the acrylic resin. Nonetheless these materials degrade over time and should not be considered permanent

Indications[4]

- Need to stabilize, cushion and splint teeth
- Periodontally involved teeth
- Need for gentle partial
- Need for transitional denture
- Mobile, doubtful teeth
- Need for aesthetics
- Not enough undercut for claps
- Eliminate extractions
- Single or isolated teeth
- Small, weak root structure

Contra-indications [4]

- Too Many Teeth- This will result in a weak prostheses
- Severe Under-Cuts
- Thick Muscle Attachments Can result in displacement of partial..
- Upper anterior are often unsatisfactory if open smile line.
- Bulky in the anterior region.

The main disadvantage of this method is that the material needs to be relined periodically if it loses its plasticity

Summary

Cu-Sil like denture is a sensible alternative to over dentures, conventional dentures, and full dentures. It improves the prognosis of loose, mobile isolated elongated or periodontally involved abutments. Cu-Sil like denture is the simplest, gentlest removable partial available. It is an acrylic tissue-bearing appliance featuring a soft liner gasket which clasps the neck of each natural tooth, sealing out food and fluids, and cushioning and splinting each natural tooth from the hard denture base. Cu-Sil like denture eliminates wear, stress and torque of metal clasps. It can postpone or eliminate total loss of periodontally involved teeth. Improves tooth stability. Saves Time and Money. No special preparations or impression techniques are required. It's unmatched in comfort, yielding better fit and improved bite. No Special Impression Techniques or Materials are needed for this and they Maintains Vertical relation and proprioception. Further studies may be required for this type of dentures

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Prosthodontic rehabilitation using chair side CAD/CAM: An insight into applications challenges and future trends

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Abstract

Chair side CAD/CAM systems allows a dental practitioner to produce a direct ceramic dental restoration using a variety of computer assisted technologies including three dimensional photography. During the past 27 years of history, they have undergone a sequential evolution. Currently there are two popular systems in the market (CEREC 3 by Sirona Dental Systems and the E4D by D4D Technologies, Texas, USA). The CEREC system has contributed a substantial role in the development of chair side CAD/CAM. The fundamentals of the system, history of its evolution, hardware, scanning and data capture, milling unit, software, materials used, biomechanical properties, benefits, future trends and limitations has been discussed.

Key words - CAD/CAM, Chair side CAD/CAM, CEREC, E4D

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Introduction

Computer-aided design/computer-aided manufacturing (CAD/CAM) technology was introduced to the dental community in the early 1980s. Since then, the CAD/CAM technology has evolved to produce systems for dental laboratories and for chair side production. The In lab systems required cumbersome processes and a lot of time to manufacture even simple restorations, and this led to the development of the chair side CAD/CAM systems. They were based on the intra operatory application of one-appointment restoration fabrication, using prefabricated ceramic monoblocks.[1] There are currently two known chair side CAD/CAM system in the market (CEREC 3 by Sirona Dental Systems and the E4D by D4D Technologies, Texas, USA), of which the CEREC system has been most scientifically researched.

Professor Dr. Werner Morman, who is considered as the father of CEREC and Dr. Brandesteni, developed the CEREC method in 1980 at the University of Zurich in Switzerland. CEREC is an acronym for Chair side Reconstruction. CEREC is a dental restoration that allows a dental practitioner to produce a direct ceramic dental restoration using a variety of computer assisted technologies including three dimensional photography and CAD/CAM. During the past 27 years of history, CEREC has undergone a sequential evolution, producing three generations of equipment (Fig. 1) and there evolved monopoly of CEREC in the field of Chair Side CAD-CAM. The fundamentals of the system, history of its evolution, hardware, scanning and data capture, milling unit, software, materials used, biomechanical properties, benefits, future trends and limitations are discussed.

History of CEREC chairside CAD/CAM

Although CAD/CAM has been used in the aeronautical and design industries since the 1950s, in dentistry the earliest attempts were conducted in the 1970s by Bruce Altschuler (USA), Francois Duret (France), Werner Mörmann and Marco Brandestini (Switzerland). Young and Altschuster were the first to introduce the idea of using optical instrumentation to develop an intraoral grid surface mapping system in 1977. The first successful

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Fig. 1 27 years of CEREC evolution

Fig. 2 CEREC Omnicam

commercial system was the CEREC (Sirona Dental Systems, Bensheim, Germany) developed by Mörmann and Brandestini in the early 1980s. The first patient was treated with CEREC inlays in 1985. Dr. W. Morman and Dr. Brandesteni introduced CEREC-1 in 1987 to produce inlays. [2]

Later Sirona has developed the Biogeneric programme; a sophisticated and totally new method of restoring missing tooth structure. Dr. Mehl and Blanz described the Biogeneric tooth model in Computerised Dentistry. This method uses a mathematical analysis of a large number of occlusal surfaces from a tooth library. The tooth model is then calculated from appropriate parameters. The software is now divided into two modes- CEREC 3D Software and master mode. CEREC 3D Software will allow new users to create restorations easier and faster by reducing the learning curve of the current software. CEREC 3D Software will be for single posterior restorations only. All the other restorations and quadrants will be able to be done in master mode. With the release of the CEREC MC XL milling unit, the CEREC user will have the capability to mill a restoration 60% faster with a smoother curve.

Parts of the system

1.Hardware comprises of a small mobile CAD/CAM unit integrating a computer, keyboard, trackball, foot pedal and optoelectronic mouth camera as input devices, a monitor and a machining compartment as output devices. A data acquisition unit and the technical processes from designing to milling of dental restorations were then developed.[3]

2.Scanning Unit employs an intra oral camera as like any other dental instrument. As the scanner and camera needed to be one single instrument, this led to the use of a grid of parallel stripes under a parallax angle directed onto the preparation, using the principle of triangulation. To acquire the depth-dependent shift of the lines an area sensor (that is, a charge-coupled device [CCD] video chip) was used. In the spring of 1983, the measuring principle was refined and a grid of parallel black and bright-white stripes, each 250 ìm wide was used on the optical bank; as a result the first optical impression of a cavity was obtained. Integrating the optical and electronic system into the small dimensions of a mouth camera required a major effort.[4] At present the CEREC system is employing three different devices for capturing the optical impressions. They are Apollo DI, CEREC Bluecam and CEREC Omnicam (Fig. 2&3). Apollo DI and CEREC Bluecam require powdering for scanning while CEREC Omnicam is equipped with powder free scanning.

3.Milling unit comprises of specially designed burs. The first grinding trials on blocks made of feldspathic ceramic (Vita Zahn-fabrik, Germany) showed that this material could be removed with a grinding wheel in a few minutes without damaging the rest of the bulk. A CEREC team at Siemens (Munich, Germany), later equipped the CEREC 2 with an additional cylinder diamond enabling the form-grinding of partial and full crowns. [4, 5] A compromises between grinding efficiency, instrument life and surface roughness of the ceramic had to be chosen and so the method of using a wheel and bur was chosen and used until the introduction of the CEREC 3 in 2000.

With the CEREC 3 the wheel was omitted and the two-bur-system was introduced. The "step bur," which was introduced in 2006, reduced the diameter of the top one-third of the cylindrical bur to a small-diameter tip enabling improved form-grinding with reasonable bur life. With the CEREC 3 system an acquisition/design unit and the milling unit were separated into two independent units.

Since, from the introduction of the CEREC 3 in

Fig. 3 CEREC Bluecam

Fig. 4 Milling unit

2000, the last major upgrade was the 3D software in 2003. The latest was in 2007 where the milling unit had the most noticeable feature upgrades. It is claimed by Sirona that milling speed has increased by 60%, milling by the new MC XL machines can machine blocks up to a maximum size of 85 x 40 x 22 mm which is 100% larger than the previous ones. The diamond burs are now longer and deploy a 20 mm step bur to eliminate the risk of the bur jamming. With an increase in precision, the MC XL can also be equipped with a second set of motors and different diamond burs to cater for other types of ceramic material (Fig. 4). Another advantage is that in the case of breakage of the burs during the milling process the machine can continue the milling operation (using the second motor) without any intervention by the user. A screen has been added so that all the operating steps are shown in plain text on the display and the milling chamber changes colour with each step so that the user may know the milling stage without having to approach the unit.

4.Software: Alain Ferru, a software engineer, designed the first software by using the anatomy of teeth, as well as the build-up of an inlay cavity in three planes: the cavity margins, the occlusion and the proximal contacts. The design algorithm was derived from the requirements to mark the cavity floor, enter the proximal contact lines, find the proximal and occlusal cavity margins, adapt the floor data and build up the proximal and occlusal surfaces. Using this information the CEREC 1 operating system was created.

The CEREC 2 software enabled the user to create full crowns, and it introduced the design of the occlusion in three modes: extrapolation, correlation and function. However, the design was still displayed two-dimensionally. The three-dimensional virtual display of the preparation, the antagonist and the functional registration became available with the introduction of the three-dimensional version of the software in 2003. The CEREC 3D software is more illustrative than the previous versions and makes the handling of the system comparatively easier. The 2005 and 2006 versions included the automatic adjustment of a selected digital full-crown anatomy to the individual preparation, to the proximal contacts and to the occlusion (a feature called the "antagonist tool"). The automatic "crown settling," "cusp settling" and "virtual grinding" functions provide the dentist with a method of controlling the vertical dimension of the restoration design before milling.[6]

Materials

There are presently 4 ceramic options commonly used with both CEREC 3 and CEREC inLab laboratory-based systems. These include two types of feldspathic porcelain-based ceramics: Vitablocs Mark II and VITA Mark II Aesthetic Line (Vita Zahnfabrik, Bad Säckingen, Germany) and ProCAD (Ivoclar Vivadent, Schaan, Lichtenstein) blocks. A resin-based composite block called Paradigm MZ100 (3M ESPE, St. Paul, Minn.) is a factory-processed version of their Z100 Restorative.[7]

E4D System

D4D Technologies introduced E4D Design Center and E4D Mill. E4D Dentist is a complete powder-free chairside CAD/CAM system employing digital impressioning, designing and fabricating metal-free inlays, onlays, crowns, and veneers in office - or collaborating with laboratory via the E4D® Sky network. E4D's high-speed laser makes a digital impression of the preparation and proximal teeth to create an interactive 3D image. The laser technology captures images from multiple angles for fast, easy and accurate scanning. The software

builds a library of images that wraps around a precise virtual model in seconds. Through wired or wireless connection, the E4D sends designs to the Milling Center to fabricate restorations from the latest metal-free materials offered by 3M ESPE® and Ivoclar Vivadent®. The system calculates custom milling paths to optimize performance and restoration integrity. Dual spindles mill both sides of the restoration simultaneously. The automatic tool changer selects the appropriate bur and replaces worn burs automatically. The mill's patented design minimizes vibration for micron-precise accuracy.

Clinical performance

It was also noted that the performance of ceramics can be compromised by a mismatch between the coefficients of thermal expansion of core and veneer materials. While this is not an issue for in-office–produced monolithic materials, it can play an important role in crown and bridge survival. This may also be a major factor in porcelain chipping, which has been reported for zirconia-based layered crowns.[8]

1. Aesthetics: Aesthetic satisfaction is independent and subjective. In many studies it was reported that layering and non-layering makes little to no significant difference in aesthetics. Techniques and the materials used have been continuously improved and the current ceramics mimic natural translucency, brightness and shades providing life-like aesthetics. In general CAD/CAM aesthetics have been well accepted.

2. Fit: There are too many variables, factors, theories, suggestions and contradictions to establish a single conclusion on micro-leakage/nano-leakage prevention and its ideal marginal gap, luting distance and material. The explanation for the lack of agreement on fit studies may be variations in the methods used by various investigators studying marginal accuracy. The cause could be the use of different measuring instruments, sample size and the number of measurement areas per specimen may also have contributed to these variations.[9] But it is clear that fit and micro-leakage are directly related, a preparation with poor fit results in gaps between the material itself and the tooth. In general CAD/CAM restorations possess higher marginal accuracy.

3. Strength: It is difficult to produce exceptional strength through traditional layering means. CAD/CAM materials are different in that they are industrially manufactured under controlled conditions and are pre-sintered. This ensures that the ceramic blocks have consistent particle size, porosity, and strength throughout.

4. Luting: There are basically 6 types of luting materials for ceramic restorations: Zinc phosphates; Poly-carboxylate; Glass ionomer; Resin reinforced ionomer; Composite, and Adhesive resin; however, adhesive resins have become a favourite due to their characteristics, and convenience.[10] It has been shown that this system is susceptible to contamination of the bonding surfaces, the two step/self etch/single bottle system eliminated one step (etch-prime); nonetheless the contamination problem still exists.[11] Several studies indicate that micro-filled resin luting agents offer the best resistance to marginal wear.[12,13] Fasbinder stated that Total Etch concept with a self-priming adhesive such as Excite (Ivoclar Vivadent), Single Bond (3M ESPE), or Prime and Bond NT (Dentsply Caulk) may be an option for clinically acceptable bonding and decreased sensitivity.[14]

5. Longevity: Longevity in CAD/CAM restorations is a complex issue as survival is dependent directly and/or indirectly on various factors which include the quality of material itself, its thickness, fit, strength, bonding/cementing material, the user (intra-oral environment, forces, habits etc), and other factors which could cause restoration damage. It also depends on the design, preparation of the cavity and the milling of the restoration.

Disadvantages of the CAD/CAM systems

1. Costs of purchase, upgrade, maintenance, fees and learning still remain extremely high for all CAD/CAM systems. It is clear that only those who can afford the purchase on the basis that their patients can afford the fees would imply that the majority of the world's population would not benefit from this form of dentistry.

2. Milling unit in the new CEREC 3D v3.0 software takes longer for calibration and milling. This is definitely a draw back as what is required is time reduction with better results. However, milling time can be reduced by using the Fast Mill function but the milled surface is rougher, and there have been reports that the general milling time has in fact increased by 5-8 minutes on default settings. Micro-cracks also do occur during milling which can lead to devastating fracture of restorations.

3. Data capture device: The CEREC Chairside camera size remains large and is difficult to capture posterior teeth especially on individuals with limited mouth opening. Slight changes in angulations in each

plane do take place as human hands are not static and physiological tremors do occur; this may lead to distortion and failed images. Powdering which is necessary for accurate picture visibility for the CEREC Chairside system is a great inconvenience and can lead to distortion and incorrect data capture if too little or too much powder is sprayed; flaking may also occur which leads to inaccurate data capture. In addition to this, the layer of powder creates a gap which should be compensated for. The input device does not have its own light source, which can lead to inaccurate data capture on darker, deeper and hard to reach areas. However with the introduction of Omnicam, the need for powdering has been eliminated.

4. Finalising: A controversy remains over the finishing procedures on glazing or polishing, as there is no conclusive evidence for using the one over the other. It is said that glazing and staining alone takes long for completion. Non glazing leaves behind micro-cracks made during milling. However polishing could also exacerbate these cracks leading to eventual fracture.

Summary

Since the inception of CAD/CAM in dentistry, the CEREC Chair side system has gone through multitudes of changes in hardware, as well as software, materials and the restorative work was done with less effort. There is still a great deal of research required in this field in all its aspects and the limiting factor for CAD/CAM is, its high cost. This may be a contributing factor to the lack of quality and quantity of reliable research studies. The difficulties in conducting such studies to achieve competitive results are lack of skilled staff to give proper guidance and financial backings, as these materials and equipments are expensive. There are number of areas which, require more studies and evidence-based information. They include the history and developments of restorative CAD/CAM, marginal integrity, physical and mechanical properties, aesthetics, post operative sensitivity etc. Most of the materials used in Inlab systems and Chairside CAD-CAM are similar.

However, the Chairside system is unique and requires improvement in the following features:

1. Camera size: It must be made reasonably small and light weight

2. Development of a stabilising device can rectify the problems associated with angulations and physiological tremors

Chair side CAD- CAM facilitated clinician's work and made available, high quality restorations in single visit. We can still consider computerized Dentistry in its infancy and there is lot of room for improvement and development.

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Dr. Thaj.S.Prasad
Chairperson

WDC Report

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Dr. Mercy Joji
Secretary

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HOSTED BY IDA ATTINGAL

MALAPPURAM BRANCH

MIDA will finish off the year with a mega family get together "SMILE 2013" at Kadavu Resorts on 1st December 2013 from 4.00pm onwards, for which we expect all the 195 MIDA members to attend with family where we have arranged an unbelievable spread of mouth watering food and colourful entertainment programmes.

Also MIDA is conducting a two day orthodontic workshop by the Dronacharya, Dr. Manjit Singh at Hotel Surya Malappuram on 9th& 10th of Nov and children's day observation on 14th Nov at Souparnika, Puthanathani by conducting a CDE on Space Management in Children for General Practice by Dr. Bijumon CB from 8.00 pm onwards.

On 1st October 2013 at Nilambur MIDA hosted one state level programme, "World Geriatric Day Observation" where the project "Hridayapoorvam" (distribution of hundred waterbeds to the poor and needy in Malappuram district) was initiated. Our state president and state secretary attended the meeting.

CDH Activities: 1. World Hepatitis Day was observed at MES Dental College 2. World Oral Hygiene Day was observed at Hotel Soorya, Malappuram on 31/07/2013. Dr. Sameer PT demonstrated the brushing technique to the children. Oral hygiene kits were distributed to all the chidren attended. 3. 9th CDH camp was held at Karathur on 17/08/2013 in association with Rotary Club of Tirur. 197 patiens were examined by 7 doctors and 35 patients received treatments. 4. World Oral Health Day was observed at Soorya, Malappuram along with the 2nd EOGM on 12/09/2013 5. World Geriatric Day Observation (IDA Kerala State Level) held at IMA Hall, Nilambur hosted by IDA Malappuram on 01/10/2013. The programme was well attended by IDA members, beneficiaries of the project, members of sister organizations like IMA, Rotary clubs, Lions clubs, Officer's club etc. Chief guest was Sri Aryadan Shoukath, Municipal Chairman, Nilambur. Dr. Antony Thomas, President IDA Kerala State presided the meeting. The dream project of IDA Malappuram, "Hridayapoorvam" (distribution of 100 waterbeds to the poor and needy) was initiated. Sri. Hameed and Dr. Krishnan who are serving the pain and palliative clinics in Malappuram district were honored.

CDE Activities 1. 6th Branch level CDE was held at Chengara Heritage, Perinthalmanna on 13/08/2013 from 7.30pm to 10.30 pm. The CDE was a lecture on Cone Beam CT Scan in Dentistry by Dr. Johnson. 2. 7th Branch level CDE was held at Hotel Rydges Inn, Kottakkal on 19/08/ 2013 from 7.30 pm to 10.30 pm. The CDE was a lecture on "Photography in Dentistry – Basic Facts and Tips" by Dr Saju NS. 3. 8th Branch level CDE was held at Hotel Rose International Hotel, Nilambur on 13/10/ 2013 from 6 pm to 8.30 pm. The CDE was a lecture on "Medical Emergencies in Dental Practice" by Dr George Skaria. 4. IDA – Pepsodent National Series of Expert Protection CDE Programme that was allotted to IDA Kerala State branch was hosted by IDA Malappuram branch on 20/10/2013 at Rydges Inn, Kottakkal from 9.00 am to 5.00 pm where a live demonstration on patient was also given for the attendees. The programme was inaugurated by Dr. Rajesh Raveendranathan, the president of IDA Malappuram. Topic was "Changing Trends in Complete Dentures" It was well attended by 46 members from all over Kerala. Dr. Eldo Koshy, Dr. Abdul Razak and Dr. Sasikumar deleverd lectures.

Family Get together & EOGM

1. 2nd EOGM & family get together was held on 12th September 2013 at Hotel Surya Regency, Malappuram.

Executive committee meetings:

1. 7th Executive committee meeting held on 31/07/13 Wednesday 8pm onwards at Surya Regency, Malappuram.

2. 8th Executive committee meeting held on 13/10/13 Wednesday 8pm onwards at Hotel Rose International.

COASTAL MALABAR BRANCH

1st August 2013 ORAL HYGIENE DAY

IDA Coastal Malabar Branch observed Oral hygiene day in association with the Rotary Club of Chervathur with a variety of programmes including a dental check-up camp, dental health awareness class, oral health quiz, essay and drawing competitions at G H S S, Kuttamath. The oral health quiz competition for senior secondary students, essay and drawing competitions for high school students were held on 28- 7-13 at the school. Dr. Reshmi Jayakrishnan was the quiz master. House-surgeons from Pariyaram Dental College actively participated in the programme.

The dental check-up camp and oral health awareness class were conducted on 1-8-13 at the same school. The camp was inaugurated by V.G. Nayanar (PDG Ri Dist.-3202) prizes for the above competitions were distributed during the inaugural function. The function was followed by the camp and awareness class by Dr. Jayakrishnan. House-surgeons form Pariyaram Dental College examined 1500 students of the school

4th August 2013 INTERBRANCH CDE PROGRAMME

IDA-CMB conducted an interbranch CDE programme at Hotel KBC Green Park, Edat, Payyanur. This programme conducted in association with IDA North Malabar and Kasargod branch. The faculty for the CDE Programme was Dr. Narasimhan Bharadwaj MDS, an eminent endodontist from Chennai. The programme started with a grand inaugural ceremony. The programme was inaugurated by Dr. O.V. Sanal, IDA Kerala State Secretary.

06-09-2013 4th Executive Committee Meeting:

4th Executive Committee Meeting of IDA Coastal Malabar Branch held at Hotel C-Mount Tourist Home, Cheruvathur, at 8.00 p.m. We discussed about Onam Celebration & decided to Celebrate on 18th Sep. 2013 at Lion's Community Centre Payyanur.

18-09-2013 Onam Celebration & Family Get-together.

Onam Celebration & Family Get-together of IDA Coastal Malabar Branch held on 18-09-2013 at Lion's community centre, Payyanur. Official meeting was inaugurated by Dr. K.T. Suresh (Charter President). After the official function various games for kids and families were conducted. As a part of Onam Celebration beautiful "Flower Carpet" were arranged by Women's Dental Council Members and Families. After entertainment programme grand Onam Sadya were served.

18-10-2013 Extra ordinary general body meeting.

Extra ordinary general body meeting of IDA Coastal Malabar Branch conducted on 18-10-2013 at Top Form auditorium Payyanur at 7.30 p.m. The agenda was National President Election Contest. Nearly 74 members were attended.

18-10-2013 6th CDE Programme

6th CDE Programme of IDA Coastal Malabar Branch conducted on 18-10-13 at Hotel Top Form Auditorium, Payyanur at 8.30 p.m. The faculty was Dr. Faizal C.P, Prof. HOD Dept. of Pedodontics, Kannur Dental College, Anjarakkandy. The Topic was Pedodontics for General Practitioners.

KOTTARAKKARA BRANCH

CDE PROGRAMME: "CHAARAL -2013"

IDA Kottarakkara in association with IDA Tirunelveli branch conducted a Two day Interstate CDE and Mini Conference at Courtallam on 17th and 18th of August 2013- CHAARAL 2013.

There was huge participation from both Ida Kerala and Tamilnadubranches with a total of 280 registrations. IDA National CDE Dr Subhra Nandy, National CDH Chairman Dr C Sivakumar; and State office bearers, State President, Secretary and CDE Convenors of the respective States also graced the occasion.

The two day CDE was handled by eminent faculty comprising of Dr George Paul MDS (OMFS), Dr V Gopikrishna MDS, FISDR(Endodontics), Dr George Skaria MDS (OMFS) and Dr M Baskaran(OMFS). The participants were awarded with certificates of 12 CDE credit points. The CDE was followed by entertainment programmes and Banquet.

CDH PROGRAMME:

Dental camp and awareness programme at Easwaravilasom High School, Neduvatur, Kottarakkara on October 3rd. The camp was well attended with around 500 students making use of the programme. Training programme for teachers on dental hygiene and brushing techniques were conducted. 40 Teachers took part in the programme.

A dental camp and awareness programme at Perungaloor, on October 13th Sunday with participation of over 300 family members belonging to different age groups.

KODUNGALLUR BRANCH

6th General body meeting 27-7-2013: 6th General body meeting of Ida kodungallur was held at IMA hall kodungallur. A large number of members attended the meeting.General body meeting was followed by 'NOMBU THURA' Organized. by our own Dr Shajahan, Dr Nazeer, Dr Thabseer, Dr shameem, Dr Noudhad, Dr Ahajaz & Dr Suhail.

5th Executive committee meeting 6-8-2013: 5th Executive committee meeting of IDA Kodungallur branch was held at Hotel Indraprastha Kodungallur. Decided to conduct a combined meeting of IDA and ima Kodungallur branch on August 27. A CDE program for general practitioners also planned in that meeting.

A combined meeting of IDA and IMA Kodungallur branch was held on 27th August 2013 at IMA hall kodungallur. A large number of members from both IDA and IMA attended. A CDE program 'general dentistry for medical practitioners' was presented by Dr Thomas Manjooran in the meeting, which was followed by dinner. Meeting was sponsored by Colgate.

6th Executive committee meeting 11-9-2013: 6th executive committee of IDA Kodungallur branch was held at IMA hall Kodungallur. Decided onam celebration on 21st September decided to participate in IDA state sports meet.

7th. General body meeting. 21-9-2013: 7th General body meeting and onam celebration of IDA Kodungallur branch was held. At hotel Chand V regency Kaipamangalam. A large number of members and families attended which was followed by various games, entertainment programs and dinner.

8th General body meeting. 24-10-2013: 8th general body meeting of IDA Kodungallur branch was held at IMA hall Kodungallur. Winners from our branch in the Ida state sports meet were honoured. Dr Shajahan, Dr Justin and Dr Beena got prizes in table tenis, carroms and short put.

A CDE program"implant for general practitioners' was presented by Dr Aji Kumar V. A large number of members attended the meeting which was followed by dinner. Meeting was sponsored by Colgate.

WAYANAD BRANCH

EXECUTIVE COMMITTEE MEETING

Six Executive committee meeting were held during this period.All the meetings were well attended by the members. Various decisions were taken.some of them are to start a benevolent fund for the members,to conduct free denture programme,school dental health education programme & cultural programme etc

FREE DENTURE PROGRAME

IDA Wayanad branch conducted camps at S.Bathery,Kalpetta&Mananthavady for edentulous patients and selected 50 BPL patients. Completed free dentures were distributed in a public function at Kalpetta. Mr.K.K.BALACHANDRAN IPS, Superintend of police Wayanad was the Chief Guest of that function.

BENEVOLENT FUNND

IDA Wayanad branch in join with Star Health Insurance started a PA Insurance policy for all the members. Total sum assured is Rs. Five lacks with Rs Fifty thousand hospitalisation benefits.

ONAM CELEBRATION &CULTURAL FEST.

Branch celebrated ONAM with various games &entertaintment programes like Pookklam, sundarikku pottuthodal, stick balance, Onapattukal &dance programes. Most of the members with their families participated.

SPORTS

Our branch participated in the state sports held at Kolenchery Brook side club and lifted RUNNER UP Trophy. Dr Sajith PC Winner in men shuttle& Dr Elsy Bijoy women shuttle Winner. Dr Elsy &DR Shani women shuttle doubles runners up. Dr Blecit Winner in javelin , Dr Rajesh Winner in shotput.In 400 meter relay Dr Bennichen,Dr George Abraham, Dr Sanoj&DR Blecit were runners up.

MALABAR BRANCH

CDE PROGRAMMES:-

1) Title:- "Clinical Applications of Lasers in today's dentistry"

Faculty:- Dr. Vidyaa Hari Iyer, Status:- Intra branch, Date:- 25.08.2013, Venue:- Hotel Taj-Gateway, Calicut

2) Title:- "Respecting the gingiva & periodontium in routine procedures"

Faculty:- Dr.Harish Kumar V.V; Status:- Intra branch, Date:- 29.09.2013; Venue:- IDA Hall, Calicut

3) Title:- "Ceramics made easy"

Faculty:- Dr.Aqueel Sajjad Reshamvala

Status:- inter branch; Date:- 13.10.2013

Venue:- Hotel Marina Residency, Calicut

EXECUTIVE COMMITTEE MEETING

EC Meeting No.3

Date:- 31.07.2013

Place:- IDA Hall, Calicut

OTHER ACTIVITIES:-

CHILAMBOLI FESTIVAL:-

Our branch participated in the "Chilamboli 2013" competition conducted on July 7th by IDA Valluvanad branch and won many prizes. We got the second prize for the best overall performance and won first prizes for the best actor, best group song and best variety performance.

"PRATHYASHA 2013":-

We conducted Prathyasha, the free denture charity programme this year, the screening of which was held on August 18th and dentures were delivered on October 6th. 62 dentures were delivered to deserving beneficiaries. Shri Ramesh Kavil, noted poet and lyricist was the guest of honour. Dr. Antony Thomas, the president of IDA Kerala spoke on the occasion.

SHUTTLE TOURNAMENT

The branch shuttle tournament was conducted on August 1st at the Police Club, Calicut.

PATHANAMTHITTA BRANCH

Activity Report - July 2013

Seventh executive committee meeting of IDA Pathanamthitta was held on 23rd July 2013 at Hotel Hills Park, Pathanamthitta at 7-30 pm. Forteen executive committee members attended the meeting and decisions on Oral hygiene day programme, upcoming interstate CDE at Kuttalametc was taken. Former branch president of Dr Reji Thomas, who works in Canada now was a guest for the meeting.

Activity Report – August 2013

1. State level Oral Hygiene Day Celebration of IDA Kerala State was held at Hotel Mannil Regency Pathanamthitta at 9 am on 4th August 2013. The programme was inaugurated by Municipal chairman of Pathanamthitta, Adv. Suresh Kumar. The Kerala State Minister for Revenue and Coir -Sri. Adoor Prakash who was supposed to inaugurate the function could not make it to attend the programme due to the postponement in the last hour. IDA Kerala State President Dr. Antony Thomas presided over the meeting. President of IDA Pathanamthitta branch Dr. BinuChacko welcomed the gathering. Municipal Standing Council Chairman Sri. JasimKutty, Kerala Dental Council Member Dr. Johnykkutty Jacob and branch level co-ordinator of the programme Dr. Eugene Varghese Joseph felicitated the occasion. The State programme co-ordinator Dr. Rajesh V delivered vote of thanks.

As part of the programme an elocution competition for high school students on the topic of 'Oral Health for Overall Health 'was conducted for the high school. The notifications of the competition were published in all the leading newspapers. The prize money declared were Rs. 5000 for first prize, Rs. 3000 for second prize and Rs. 2000 for third prize. The applications for participating in the competition were made available at the dental clinics of all the members of Pathanamthitta branch and in the official web site of IDA Kerala State.

Activity Report – September 2013

Eighth executive committee meeting of IDA Pathanamthitta was held on 3rd September 2013 at Hotel Hills Park, Pathanamthitta at 7 30 pm. Fifteen executive committee members attended the meeting and decisions on Onam celebration, upcoming CDE, tour program etc was taken.

Onam celebration of the branch was on 29th September 2013 at Vedagram Resort Omalloor. More than twenty families attended the programme which was inaugurated by the state president elect Dr Nizaro Siyo. State dental council member DrAnish was also a guest for the program.

CENTRAL KERALA KOTTAYAM BRANCH

JULY 2013 CDE PROGRAMME:

4th CDE was on SUCCESS IN CROWN PREPERATION by Dr. MUNIRATHANAM NAIDU on 7th and 8th of July. It was conducted as Dr. V K MANI memorial CDE programme. There was 109 registration for the lecture session on 7th. Dr Anil Kumar, Head of the department of Prosthodontics, GDC Kottayam was the faculty on 8th july.

FAMILY gettogether: Monsoon fest was held on 20th and 21st of july at Thrisangu haven Kuttikanam. 40 families attended the function.

CDH Activity: Dental screening camp was held at Maria Bhavan, Kumarakom.

CDE programme: 5th CDE was on INTERCEPTIVE ORTHODONTICS by Dr. ANIL THALLIYATH on 25thAUGUST.

CDH Activity: AUGUST 1st was celebrated as ORAL HYGINE DAY. On this day dental awareness class were taken in various schools.

On 8th August dental camp at puthupally was conducted.

On August 28th dental screening camp at Vakathanam, Kottayam dist was conducted. All the patients, and students from the school were provided with oral hygine kit.

Executive meeting: On 19/8/2013 the 4th executive meeting of IDA-CKK was held at Kottayam club, Kottayam.

CDE programme: 6th CDE was on MYTH AND FACTS OF PERIDONTAL TREATMENT by Dr. GEENA KOSHY on 29th SEPTEMBER.

CDH Activity: On september 28th dental screening camp at Vakathanam, Kottayam dist was conducted. All the patients, and students from the school were provided with oral hygine kit.

Executive meeting: On 23/9/2013 the 5th executive meeting of the branch was held at Kottayam club, Kottayam.