



TRIVANDRUM DENTAL JOURNAL

JOURNAL OF INDIAN DENTAL ASSOCIATION TRIVANDRUM BRANCH

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Volume-2, Issue -1



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Editorial Office :

Dr. (Capt) Vivek .V

Editor, Trivandrum Dental Journal
Kairali, House No. 330, Gandhi Nagar
3rd Street, Vazhuthacaud, Trivandrum.
e-mail : editoridatvm@gmail.com
vivekv@rediffmail.com

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Dr. Capt. Vivek .V

Editor, Trivandrum Dental Journal,

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Phone : 0471 - 2329276/2322585, Mobile : 09447341035

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Editorial

Integrating research into clinical practice: The need of the hour

Dr [Capt] V. Vivek

Editor, Trivandrum Dental Journal
Kairali, House No. 330, Gandhi Nagar 3rd Street, Vazhuthacaud, Trivandrum.
e-mail : editoridatvm@gmail.com, vivekv@rediffmail.com

As in any profession it is important to maintain a level of professionalism in dentistry as well. With the advent of new technology and progress in training (both clinical and research), the integration of research findings into daily practice is mandatory for maintaining the said professionalism. It is important to study recent changes in dental practice including financial realities of a changing society, changes in laws and policies, as well as operational standards in the state, with a subjective perspective. This means that ones own assessment of the field and recommendations related to the identified faults in the daily dental practice and community dental health is essential. Research operations, of course, will continue to operate parallel to clinical activity, but there are several key areas where the clinical operations can be valuable tools for research. In the past, most, clinical research in dentistry were conducted in an academic environment that is very different from the environment of a full-time clinical practice. One of the criticisms made of such clinical research is that it has been conducted in an artificial “ivory tower” environment^{1,2}. Currently there is growing recognition that advances in health care are limited by failure to translate research findings into clinical practice^{1,3} This is mostly because of the perception that the results found in an academic environment would not translate into a full-time practice environment. Although researchers are building substantial evidence on best practices, less is known about how best to promote these practices. Even in a developed country like the United states it takes almost two decades for a new concept in health care to find its way into daily practice¹.

There are several agencies functioning in the developed countries, striving to encourage the conduct of clinical research in dental practices and to bridge the gap between research and daily practice.¹ In these programs practicing dentists who are interested in practice-based research receive training in research methodology that will prepare them to conduct clinical research studies in their own offices. Even though the lectures on research methodology may not be as exciting as a hands-on clinical procedure course, these may help the dental surgeons in conducting quality studies in their practices¹.

As in any other part of the world, in India we need well-thought-out strategies to encourage the adoption and sustenance of evidence-based practice, which integrates clinical expertise and patient preferences with the judicious use of the best available research evidence^{4,5}.

It is high time that we undertook measures to improve our professionalism, by encouraging not only research but also measures to facilitate percolation of research findings into clinical practice. In our country, The Indian dental association can play an important role, in translating research findings into clinical practice by

- i) creating awareness in both the state and central governments.
- ii) forming practice based research networks involving general practitioners.
- iii) compiling data and facilitating the early flow of research information in to daily clinical and community dental practice.

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ORIGINAL ARTICLE

Assessment of age by clinical eruption of 2nd molar in the 12 – 14 years

Singi Yatiraj¹, Vijay Kumar Nair¹, Ravinder Reddy²

ABSTRACT

The study was undertaken in the age group of 12 – 14 years in the Gulbarga region to determine the age in school going children by clinical eruption of 2nd molar teeth. 50 boys and 50 girls studying in 7th to 10th standard in higher secondary schools of Gulbarga city were selected randomly and examined for clinical eruption of 2nd molar teeth after obtaining informed consent and all relevant information like their age, sex, socio-economic status, diet, habits etc. The study reveals existence of a co-relation between the stages of eruption of tooth with chronological age and early eruption of teeth in girls and in lower jaw. It was also found that the oral hygiene and mixed diet promoted eruption of teeth. The socio-economic class II subjects showed early eruption compared to socio-economic class I.

KEY WORDS: age estimation, second molar.

Introduction

The determination of age of 12 – 14 years is very important in medico-legal work and comes up frequently in connection with the questions of criminal responsibility, rape, kidnapping, child labour, etc.

Many workers from India and abroad have undertaken studies to estimate the age from eruption of teeth and they have observed that factors like race, geography, climate, diet, heredity and endocrine factors do affect the physiological changes occurring at puberty especially in a vast multiethnic county like ours.

In this context, it was felt that there should be local data involving local population. Hence this study, of estimating age based on dental examination of 100 school children in the age group

of 12-14 years in the Gulbarga city, was undertaken.

Aims and Objectives

1. Determine the age in school going children aged between 12–14 years by dental examination.
2. To find out the variation between the findings of other workers in India and abroad with the present study if any.
3. To evaluate the factors that affects the eruption of teeth.

Materials and Methods

The study was carried out between September 2005 to August 2007 in the Department of Forensic Medicine, M. R. Medical College, Gulbarga. The subjects for the present study consisted of 50 boys and 50 girls, studying in 7th to 10th standard in various higher secondary schools of Gulbarga city from the period July 2006 to July 2007. The study subjects were bonafide residents of the region with known birth dates and were apparently healthy at time of study. The subjects were selected by random sampling. All the selected subjects were broadly classified in the 2

1. Assistant Professor

2. Professor,

Dept. of Forensic Medicine, Sree Mookambika Institute of Medical Sciences, Kulashkharam, KanyaKumari Dist.

Address for Correspondence

Dr. Singi Yatiraj

Dept. of Forensic Medicine

Sree Mookambika Institute of Medical Sciences

Padanilam, At Post: Kulashkharam,

Kanya Kumari Dist. (Tamil Nadu)

Email: singi_yatiraj@yahoo.com

groups of equal strength and equal male to female ratio.

Group I:

Age between 12 years to 12 years + 364 days

Group II:

Age between 13 years to 13 years + 364 days

For conducting the study, a proforma was devised to collect all relevant information like age, sex, socio-economic status, diet, habits etc. from the subjects. The information regarding eruption of teeth was directly entered into the master chart. The subjects were examined after obtaining informed consent.

The oral cavity was examined with the help of a torch light and a dental mirror with mouth wide open with a tongue depressor. Detailed dental examination was done and details noted in the form of number of teeth erupted and stage of eruption. Dental charting was done according to F.D.I. (Federation Dentaire Internationale) system, as follows:

18 17 16 15 14 13 12 11	21 22 23 24 25 26 27 28
48 47 46 45 44 43 42 41	31 32 33 34 35 36 37 38

The staging of tooth eruption was done in the following manner¹

- Stage 0: Non-eruption of primary tooth/fall out of primary tooth and non-eruption of corresponding permanent tooth.
- Stage 1: When tip of crown of tooth penetrated the gum margin. (Positive clinical eruption)
- Stage 2: When crown has grown into oral cavity beyond gum margins but not yet reached the occlusal plane.
- Stage 3: When the occlusal surface was in contact with its counterpart and the bite complete.

The findings obtained were tabulated and statistically analysed by comparing other similar studies in India and abroad.

Results

Table 1 describes the age and sex wise distribution of the study subjects. For comparing and analysis, the study subjects were taken in equal

proportion i.e. 25 males and 25 females in age group of 12-13 years, 25 males and 25 females in age group of 13-14 years were selected.

Table 2 shows the stages of eruption of the 4 second molar teeth numbered as per the FDI system. In age group 12 – 13 years, most of the male children (more than 40%) had one or the other 2nd molar teeth not erupted whereas their countersex had 2nd molar in stage 2 or 3. In age

Table 1: Age and sex wise distribution of study subjects

Age Group	Male (No. = 50)		Female (No. = 50)	
	Number	%	Number	%
12 – 13 years	25	50.00	25	50.00
13 – 14 years	25	50.00	25	50.00
Total	50	100.00	50	100.00

group 13 – 14 years the contrast in eruption stages between male and female was blurred. Thus, it is evident from the table that in females the dental eruption is quite earlier than males. Similarly from the stages of eruption, it can also be stated that the 2nd molars of the lower jaw appear earlier than those of upper jaw. However there was no difference in eruption of 2nd molars of left and right side in the same jaw.

Table 3 shows the influence of external factors like diet, oral hygiene and socio-economic status on eruption of 2nd molar. One can infer from the table that mixed diet and good oral hygiene have positive influence on the eruption of 2nd molar. However, in regards to socio-economic status, the study subjects belonging to class II showed early eruption of 2nd molar.

Discussion

In the present study, it was observed that there is significant difference in eruption pattern of 2nd molar in both sexes, the females showing early eruption. This findings are in agreement with Shourie², Kaul³, Laxmi kumar⁴, Mishra⁵, Kishore⁶, Agarwal⁷, Halikis⁸, Knott⁹, Carr¹⁰, Hagg¹¹, Eskeli¹², Parner¹³, Diamanti¹⁴ and Wedl¹⁵ but not with Kamalnathan¹⁶. This could be due to the hormonal effects that cause difference in steroid, adrenocortical and gonadotrophin levels between the two sexes. (Table No. 4)

Table 2: Stages of eruption of 2nd molar

	12 – 13 Years (No. = 50)				13 – 14 Years (No. = 50)			
	Male (No. = 25)		Female (No. = 25)		Male (No. = 25)		Female (No. = 25)	
	Number	%	Number	%	Number	%	Number	%
Right Upper Jaw (17)								
0	13	52.00	3	12.00	3	12.00	6	24.00
1	3	12.00	3	12.00	0	0.00	6	24.00
2	3	12.00	13	52.00	22	88.00	6	24.00
3	6	24.00	6	24.00	0	0.00	7	28.00
Left Upper Jaw (27)								
0	13	52.00	0	0.00	3	12.00	9	36.00
1	0	0.00	3	12.00	0	0.00	0	0.00
2	6	24.00	19	76.00	19	76.00	13	52.00
3	6	24.00	3	12.00	3	12.00	3	12.00
Left Lower Jaw (37)								
0	10	40.00	0	0.00	0	0.00	0	0.00
1	3	12.00	6	24.00	0	0.00	7	28.00
2	6	24.00	6	24.00	9	36.00	9	36.00
3	6	24.00	13	52.00	16	64.00	9	36.00
Right Lower Jaw (47)								
0	9	36.00	6	24.00	0	0.00	3	12.00
1	3	12.00	0	0.00	0	0.00	3	12.00
2	6	24.00	9	36.00	6	24.00	3	12.00
3	7	28.00	10	40.00	19	76.00	16	64.00

However like many others this study also could not assess and establish the time difference between eruption of mandibular and maxillary 2nd molar.

Moreover the mean age of eruption of 2nd molar was quite high in the present study when compared to other studies. This could be because of the prescribed age limit for this study i.e. between the ages of 12–14 years, thus removing the slightest possibility of having mean age below 12 years.

Some variations exist between the present study and studies of Mishra¹, Hurme¹⁷ and Knight¹⁸ which could be due to limited age period of 12 – 14 years and limited sample size of 100 subjects. However there was obvious difference between the mean age for stages of eruption between the two sexes. (Table No. 5)

Conclusion

The following conclusions were derived from the present study of age estimation of 100 children

aged between 12 – 14 years by clinical eruption of 2nd molar.

1. The age range for eruption of 2nd molar is 12 years 10 months to 13 years 4 months.
2. There exists a co-relation between the stages of eruption of tooth with chronological age.
3. The 2nd molar erupts earlier in girls than boys by 4 months.
4. The mandibular 2nd molar erupts earlier than its counterpart in maxilla by 1 month in males and 1-2 months in females.
5. There is no significant difference between the eruption of 2nd molar of right and left side in the same jaw.
6. The eruption of teeth is promoted by good oral hygiene. The vegetarians lag behind individuals with mixed diet study.

Table 3: Influence of external factors on eruption of 2nd molar

	Diet			Oral Hygiene			Socio-economic status					
	Vegetarian (n=78)	%	Mixed (n=22)	%	Good (n=91)	%	Poor (n=9)	%	Class I (n=38)	%	Class II (n=62)	%
Right Upper Jaw (17)												
0	22	28.21	4	18.18	19	20.88	6	66.67	10	26.32	16	25.81
1	6	7.69	6	27.27	12	13.19	0	0.00	3	7.89	9	14.52
2	38	48.72	6	27.27	41	45.05	3	33.33	22	57.89	22	35.48
3	12	15.38	6	27.27	19	20.88	0	0.00	3	7.89	15	24.19
Left Upper Jaw (27)												
0	19	24.36	6	27.27	19	20.88	6	66.67	13	34.21	12	19.35
1	3	3.85	0	0.00	3	3.30	0	0.00	0	0.00	3	4.84
2	44	56.41	13	59.09	53	58.24	3	33.33	25	65.79	31	50.00
3	12	15.38	3	13.64	16	17.58	0	0.00	0	0.00	16	25.81
Left Lower Jaw (37)												
0	6	7.69	3	13.64	6	6.59	3	33.33	6	15.79	3	4.84
1	10	12.82	6	27.27	10	10.99	6	66.67	0	0.00	15	24.19
2	28	35.90	3	13.64	31	34.07	0	0.00	19	50.00	13	20.97
3	34	43.59	10	45.45	44	48.35	0	0.00	13	34.21	31	50.00
Right Lower Jaw (47)												
0	12	15.38	6	27.27	16	17.58	3	33.33	6	15.79	12	19.35
1	6	7.69	0	0.00	3	3.30	3	33.33	0	0.00	7	11.29
2	19	24.36	6	27.27	22	24.18	3	33.33	13	34.21	12	19.35
3	41	52.56	10	45.45	50	54.95	0	0.00	19	50.00	31	50.00

Table 4: Comparison of eruption of 2nd molar with other authors

Study	Maxillary				Mandibular			
	Male		Female		Male		Female	
	Right	Left	Right	Left	Right	Left	Right	Left
INDIAN STUDIES								
Shourie ² (Madras – 1946)	12.37	12.37	11.86	11.93	12.26	11.9	11.95	11.48
Kaul ³ (Haryana – 1989)	11.48		11.35		11		10.89	
Laxmi Kumar ⁴ (A.P. – 1990)	11.6		11.5		11.76		11.15	
Mishra ⁵ (H.P. – 1994)	12.66		12.1		12.5		12.3	
Kishore ⁶ (Delhi – 1999)	12.46	12.18	11.68	11.78	11.83	11.37	11.47	11.48
Agarwal ⁷ (Delhi – 2004)	11.64	11.59	--	--	11.34	11.34	--	--
Present study (Gulbarga– 2007)	13.4	13.2	12.10	12.11	13.2	13.2	12.10	12.10
FOREIGN STUDIES								
Kamalnathan ¹⁰ (Thailand – 1953)	12.2		12.1		11.7		11.6	
Halikas ⁸ (Australia – 1961)	12		11.6		11.7		11.4	
Knor ⁹ (USA – 1962)	11.9	11.9	11.9	11.9	11.6	11.5	11.2	11.2
Carr ¹¹ (Australia – 1962)	12.1		11.7		12		11.4	
Hagg ¹² (Sweden – 1985)	12.74	12.98	12.29	12.50	12.29	12.45	11.71	11.87
Eskeli ¹³ (Finland – 1999)	12.39		11.9		11.96		11.59	
Parner ¹⁴ (Denmark – 2001)	12.24		11.83		11.94		11.46	
Diamanti ¹⁵ (Australia – 2003)	12.7		12.3		11.7		11.59	
Wedl ¹⁶ (Turkey – 2004)	12.24		12.33		11.85		11.90	

7. Subjects belonging to class II socio-economic status show slower eruption rates than those belonging to class I socio-economic status.
8. In dental evaluation, emphasis should be given to the stages of eruption rather than mere eruption of 2nd molar to correctly calculate the age.

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Table 5: Comparison of stages of eruption of 2nd molar with other authors

	Maxillary						Mandibular					
	Male			Female			Male			Female		
	I	II	III	I	II	III	I	II	III	I	II	III
INDIAN STUDIES												
Mishra ¹ (H.P.)	12.0	12.6	13.4	11.5	12.0	12.8	11.9	12.4	13.2	11.3	11.9	12.7
Present study	12.4	13.4	12.5	12.7	12.1 1	13.9	12.8	13.4	13.2	12.1 0	12.1 0	12.1 1
FOREIGN STUDIES												
Hurme ¹⁷ (USA)	12.4	12.3 8	14.1	10.1 1	12.2 7	13.8	10.9	12.1 2	13.6	10.4	11.6 6	13
Knight ¹⁸ (UK)	11	13	14	11	12	14	11	12	13	10	12	13

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CASE REPORT

Melioidosis of parotid gland - A case report

Anand Kalaskar¹, Mathew Jose²**ABSTRACT**

Melioidosis is the name given to all diseases caused by the bacterium *Pseudomonas pseudomallei*. Eventhough the organism can infect any organ system, the lung is the most common organ affected. With increasing mobility of people throughout the world and the influx of immigrants from endemic to nonendemic areas, it is important that clinicians be aware of this disease. In this article, we report a male diabetic with Melioidosis of Parotid gland caused by *Burkholderia pseudomallei*.

KEY WORDSMelioidosis, *Burkholderia pseudomallei*, parotid gland

Introduction : Melioidosis incidence has been constantly increasing in the last decade, owing to the increasing number of immunocompromised in the community. The dire complications associated and the wide spectrum of manifestations mimicking a great range of diseases make this infection a special one in every clinician's experience. The disease is endemic in Southeast Asia, northeast Thailand, northern Australia, South and Central America. In recent years, cases of melioidosis have been reported in the United States and other areas. With its increasing prevalence in South Asia, comparable to South-East Asia where the disease is more common, it is being commonly diagnosed in most parts of the world. Melioidosis is an emerging infection in India with many cases being reported from southern states. The broad spectrum of presentations, with lack of availability of laboratory technology and unawareness of the condition among many medical practitioners might be responsible for the recorded low incidence in rest of the world.

1. Asst.Professor, Dept of Microbiology, Sree Mookambika Institute of medical sciences, Kulasekharam.

2. Professor & Head,
Dept of Oral and Maxillofacial Surgery,
SMIDS, Kulasekharam.

Address for Correspondence:

Dr. Anand Kalaskar,

Asst.Professor, Dept of Microbiology,
Sree Mookambika institute of medical Sciences, Kulasekharam.
Email:anandkalaskar100@yahoo.com

Several Hundred cases have been recorded since the original description of the disease by Whitmore and Krishna swami in 1912. In the vast majority, the disease has been acute, with symptoms simulating cholera or enteric fever, and has proved fatal from septicemia within a few days or weeks.^{1,2} The organism is found in soil and surface water. More than half of the patients have underlying predisposing conditions, such as diabetes and renal disease.³

In India cases of melioidosis have been reported from West Bengal, Tamil Nadu, Tripura, Maharashtra and Kerala.⁴

Case Report :

A 59 year old male diabetic patient farmer by occupation presented to our hospital with a swelling in the left parotid area. The swelling was noticed by the patient two weeks back which appeared with an attack of fever. No significant past history. Personal history included smoking of 70 pack of cigarettes/year and consuming large amounts of alcoholic beverages.

After taking a course of antibiotics from a local doctor the fever subsided but the parotid swelling persisted and was gradually increasing in size with mild pain.

On General examination patient was febrile, tachycardic and tachypnaeic. Slight pallor was



Fig. 1: Extra oral appearance

noted. There was no icterus, Clubbing or edema. Cervical lymph nodes were not palpable. On local examination the swelling was about 4x4cm in size, smooth surfaced, soft and slightly fluctuating, non tender, skin over the swelling was shiny and situated in left parotid area. It was clinically diagnosed as parotid abscess (Fig. 1). Routine blood investigations along with Ultrasound was advised. FNAC was advised to rule out any malignancy. The ultrasound confirmed the parotid abscess and fine needle aspiration cytology showed neutrophils along with few lymphocytes and macrophages. Pus was aspirated for gram staining and culture. Gram-staining showed gram negative bacilli with beaded appearance. Culture on blood agar showed greyish white, smooth colonies with a slight metallic sheen and a distinctive musty odour. MacConkey agar revealed non-lactose-fermenting colonies, which turned pink after 48 hrs. Ashdown's medium, a selective medium



Fig. 2: Antibiotic sensitivity by disc diffusion method showing *B. pseudomallei* colonies

showed 3-4 mm bluish purple colonies characteristic of *B. pseudomallei*. Hanging drop preparation showed motile bacilli. The isolate was identified as *B. pseudomallei* based on bipolar appearance, growth on Ashdown's medium and characteristic biochemical reactions, including positive oxidase reaction, nitrate reduction, arginine dihydrolase activity and oxidation of glucose and lactose.

Antibiotic susceptibility testing was performed by the disk diffusion test according to the Clinical Laboratory Standards Institute guidelines. The isolate was susceptible to ceftazidime, cotrimoxazole and meropenem, but resistant to gentamicin, amikacin, ciprofloxacin and polymyxin B (300 µg/disc). The unusual antibiotic susceptibility pattern was also suggestive of *B. pseudomallei*. The patient was treated with ceftazidime 2 g intravenous every 8 hours plus cotrimoxazole 2 ampules intravenous every 8 hours for 8 days followed by one month of oral trimethoprim-sulfamethaxazole. The diabetes mellitus was controlled using multiple subcutaneous injections of intermediate and short acting insulin. The patient fully recovered.

Discussion :

In India, Melioidosis is an emerging infection. A survey near Vellore revealed a Seroprevalence of 7 %, though serological tests have poor sensitivity and specificity in clinical situations.⁵ Most of the patients had underlying predisposing conditions, such as diabetes mellitus³ and this is present in our patient. Subclinical infections are common in man. There may be an acute septicemia, a subacute typhoid like disease, or pneumonia and hemoptysis resembling tuberculosis. Patients with the localized form usually present with a prolonged fever and involvement of one or more organs, particularly the lungs or liver.⁶

In chronic form the organism may localize in any tissue producing caseous necrosis or suppurative lesion, as the affection of parotid gland in this case. Many reports of melioidosis with abscess in unusual sites such as central nervous system, parotid gland, neck area, adrenal gland, and prostate gland^{7,8,9} have been published.

In conclusion, it becomes important to note that *B.pseudomallei* can infect any tissue and hence the clinicians should always be aware of this disease. Thus, culture for *B. pseudomallei* should be performed in patients presenting with clinical syndromes compatible with melioidosis.

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CASE REPORT

Multi disciplinary treatment approach for a patient with multiple missing teeth – A Case report.

K. Madhav Manoj¹, K.K. Manjusha²

ABSTRACT

Multiple missing teeth cause both functional and aesthetic problems for the patient. Orthodontic space closure eventhough an attractive solution is often limited by several variables. A multi disciplinary treatment approach should be considered. This article discusses the various treatment alternatives and the multidisciplinary management of a case of adolescent girl with multiple congenitally missing teeth.

KEYWORDS

Multiple missing teeth, multi disciplinary management, orthodontics.

Introduction

Disturbances in dental development are a major cause for malocclusions and congenitally missing teeth are one of the most common developmental problems^{1,2}. The most likely etiological factors are hereditary, environmental factors like disturbances in the initial stages of tooth formation and evolution. Specific terms are used to describe the nature of congenital absence of teeth. Anodontia is the total absence of teeth and is usually associated with hereditary ectodermal dysplasia. Oligodontia is the absence of most of the permanent teeth. Hypodontia is the absence of a few teeth. Most cases of teeth missing are hypodontia. Several studies have suggested that, excluding third molars, the premolar is the most common congenitally missing tooth¹⁻³. The orthodontic management of patients with

missing premolars is not as well documented as that of missing maxillary lateral incisors⁴.

This article describes a case of an adolescent girl who had multiple congenitally missing teeth and a retained primary molar, the various treatment alternatives and combined orthodontic & prosthodontic management.

Case Report :

A 16 years old female patient reported with the chief complaint of multiple missing teeth and spacing of upper teeth. Her dental history included extraction of deciduous teeth at different times, but the maxillary left second deciduous molar and maxillary deciduous canine were still retained. By the time she came with the panoramic radiograph the canine had accidentally got exfoliated. The lower left molar had a defective restoration. Family history showed that three paternal aunts and their two daughters also had missing teeth but not their sons. The males in the family were not affected. The probable etiology could be attributed to genetic and developmental factors.

The patient had a mild convex profile and competent lips but is reluctant to smile. On intra oral

-
1. Reader, Dept: of Orthodontics, PMS College of Dental Science and Research, Trivandrum
 2. Reader, Dept: of Orthodontics, Noorul Islam College of Dental Sciences, Trivandrum.

Address for correspondence :

Dr. Madhav Manoj K
 Reader Dept: of Orthodontics,
 PMS College of Dental science and Research
 Smile avenue, Charachira Rd, Plamoodu Jn.,
 Thiruvananthapuram-4. Phone:+91-471-2315959/60

examination there was class I molar relationship on both sides. The right maxillary permanent canine has migrated close to the 1st molar. Maxillary right and left 1st and 2nd premolars and mandibular left lateral incisor were clinically absent. There was retained maxillary left deciduous 2nd molar. The residual space present in the maxillary arch was 13 mm on the right and 3 mm on the left. Both the upper laterals were peg shaped. The mandibular left 1st premolar was in infraocclusion.

Overjet was 3mm and overbite was 2mm. Both arches were u-shaped. There was maxillary midline diastema of 3 mm with distally inclined crowns of both central incisors and low frenal attachments. Mandibular incisors were mildly proclined. The maxillary dental midline deviated slightly to the right by 3mm in relation to the facial midline. (Figs 1 & 2)

The panoramic radiograph confirmed congenital absence of maxillary right and left first and second premolars and mandibular left lateral incisor and all the third molars. The persistent maxillary left second deciduous molar appeared in infraocclusion, with a horizontal interdental crestal bone level with root resorption. The overall bone level was within normal limits (Fig 3).

mandibular plane angle of 31° showed a dolichocephalic facial pattern. Maxillary and mandibular incisors were mildly proclined by 2° from normal. Soft tissue analysis showed a normal relationship of the chin, lips, and nose to the Holdaway line.

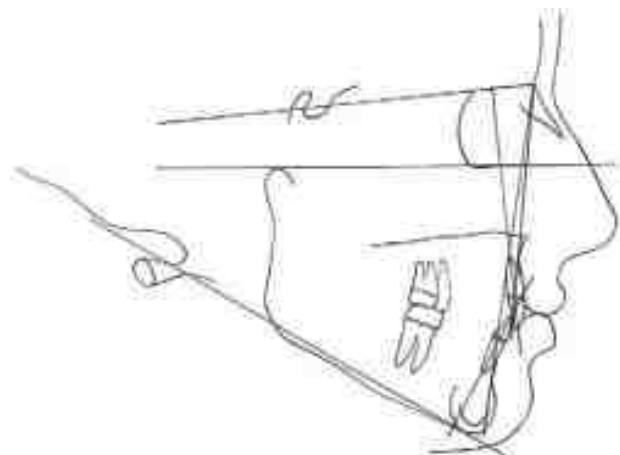


Fig 4. Pretreatment cephalometric tracing



Fig 1. Pretreatment facial photographs.



Fig 2. Pretreatment intra oral photographs.

Cephalometric analysis showed a skeletal Class I anteroposterior relationship with an ANB angle of 3°, both maxilla and mandible slightly retruded relative to the cranial base. A Frankfort-

Treatment Alternatives

Different treatment options were considered for this problem. An auto-transplantation approach was considered. Extracting the maxillary right canine and placing it in a socket in ideal canine relation and the socket of canine could have been used for the placement of implant. But this option was dismissed as it will not rectify the Bolton ratio.

The next option was to extract lower 2nd premolars and maxillary left second primary molar and close all the premolar spaces after moving the right upper canine and molars mesially. The need for restorations would have been minimized by this treatment option. But, nevertheless, with up righted incisors initially, the risk of adversely affecting the profile made this treatment option to be abandoned.

To minimize profile changes, closing the maxillary second primary molar spaces only and finishing in Class II molar-Class I canine relationship had been considered; but even though the maxillary left first premolar space was already closed, the complete closure of maxillary second primary molar space and the 13 mm space to be closed on the right side would still make overbite and maxillary incisor torque control difficult. The retained second deciduous molar could have been maintained; some reports indicate a good prognosis for long-term survival.⁵⁻⁷ This would also lead to a compromised occlusion on both sides (“super Class II”).

Another option was to open all missing premolar spaces extract the retained deciduous maxillary 2nd molar and finish in molar Class I, Class I canine and incisor relationship. Single-tooth implants can be used to replace the 4 missing premolars, avoiding any preparation of teeth. The peg laterals would be augmented.

All these options were considered and the last option ie; space opening and replacement with single tooth implants was selected. The molars were already in a Class I relationship. Initial root parallelism and divergence adjacent to the missing premolar sites were also in favor of space opening and implant placement. This option would give a favorable profile change also.

Treatment Progress

After caries control and oral hygiene instruction, the maxillary left second primary molar was extracted carefully and collagen plug was placed to prevent bone loss in the future implant site. Orthodontic treatment was started with pre adjusted edgewise brackets (.022slot) MBT prescription. Trans Palatal Arch was placed and the second molars were included in the arch. The maxillary arch was leveled and aligned, with a progression of archwires, starting with a .016-in Heat Activated Nitinol (HANT) and working up to .019 x .025 SS wires. Anterior space was closed by mesial movement of incisors. Laterals were augmented using restorative composite. The maxillary canines after de rotation was moved mesially using open coil NiTi springs on .019 x .025 SS wire. The mandibular arch was banded and bonded 5 months into treatment and the teeth were

leveled and aligned once the lower right premolar has completely erupted. Nobel Biocare (Gothenburg, Sweden) implants, 10mm – 4.3 mm in the maxilla were placed 2 years 9 month into treatment, at 18 years 9 month of age. Maxillary frenectomy was also done.

After 3 yrs 5mths of treatment appliance was removed, and the implants were loaded with temporary crowns on the same day. Impressions were made. A maxillary Hawley retainer was given and instructions were given for a full time wear for 12 months, followed by 6 months of night time wear. A lingual fixed retainer was given permanently for the mandibular arch. Final crowns and veneers for laterals were placed 7 months after appliance removal.

Treatment Results There was improvement in facial profile and smile with treatment. (Fig 5) Intraorally, anteriors were corrected and well aligned. The midline diastema was corrected and normal overbite and overjet relationships were maintained. The arch-length – tooth material discrepancy was corrected in both arches, with a Class I canine and molar relationship. A stable buccal occlusion was established; Both arch forms were symmetric, U - shaped and well coordinated to each other. The lateral incisors were augmented and the premolar crowns on the implants replaced the missing teeth appeared well-integrated in terms of size, shape, colour and function. (Figs 6).



Fig 5. Post treatment facial photographs.



Fig 6. Post treatment intraoral photographs.

Multiple missing teeth cause a lot of functional and aesthetic problems for the patient. Space maintenance\opening for replacement and space closure are the two commonly considered treatment options in case of congenitally missing second premolars. Space closure is a more attractive solution in adolescent patients. However, treatment decisions should depend on the basic orthodontic diagnostic variables like arch-length deficiency or availability, facial profile, and age & gender, existing malocclusion etc.

Considering the patient had only mildly proclined incisors, minimum overjet and overbite and acceptable profile, non extraction and space opening treatment option was selected. Treatment results show that the patient had benefited from this option. With space maintenance\opening, various options can be considered for the replacement of congenitally missing premolars. Osseointegrated single-tooth implant has become the restoration of choice with many dentists. Other replacement options are fixed bridges and auto transplantation. Fixed bridges are not preferred in young patients with strong & healthy adjacent teeth and Maryland type of bridges have a high failure rate also.^{8,9} Auto transplantation, being a biologic approach has advantages like a normal periodontal membrane and possible orthodontic movement like any other tooth, synchronous eruption with the neighboring teeth during continued facial growth, adaptation to functional stimuli and normal marginal gingival contour. But it can be applied only in children who have premolars that are still developing.¹⁰

Currently, osseointegrated implants are becoming the most biologically conservative and most indicated option for replacing congenitally missing single teeth.¹¹⁻¹⁶ However monitoring these patients in the mixed dentition is essential. Preventing space loss and maintaining proper root parallelism & adequate alveolar bone height and width is important. If there is a retained deciduous second molar, it can be used for space maintenance.¹⁷ However, reduction of crown width can be done¹⁵. In the case of infra occlusion, a composite buildup can be done to prevent supra eruption of opposing teeth. Sometimes the deciduous molar may be ankylosed.^{4,17}

Timing of extracting ankylosed deciduous molar is very important and depends on the patient's age and the amount of growth remaining.¹⁵ Early extraction is preferred to late extraction to avoid complex subsequent orthodontic treatment. Delayed extraction of ankylosed deciduous molars, after orthodontic treatment, will lead to a severe vertical bone defect, making implant placement extremely difficult, and will likely make a bone graft necessary.¹⁸

In this case the retained deciduous second molar was extracted at the beginning of treatment, space opened for the premolars on both sides of maxillary arch, root parallelism was achieved and implants were used for replacement.

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CASE REPORT

MRI in the diagnosis of Temporomandibular Joint Disc Disorders- Report of 2 cases

Alex D Vineet ¹, N Gnanasundaram²

ABSTRACT

Temporomandibular joint (TMJ) disorders are complex and difficult to diagnose. When soft tissue components of the joint are involved conventional radiographs are of little help in diagnosing the exact disease process. This article attempts to highlight the role of magnetic resonance imaging [MRI] in the accurate diagnosis of TMJ disorders.

KEY WORDS: MRI, articular disc, disc displacement

INTRODUCTION

Temporomandibular joint (TMJ) is a ginglymo bi arthroidal synovial joint where the action of one joint depends upon the architectural pattern of the other joint. This is the only joint that is connected to the cranium. The components of the TMJ include the glenoid fossa the head of the condyle, fibrous capsule, ligaments and the articular disc. The capsule is lined with synovium and is filled with synovial fluid. The articular disc is made of collagen fibers, cartilage composed of proteoglycans and elastic fibers. The disc is attached by ligaments to the medial and lateral walls of the condyle. It has an anterior thick band intermediate thin band and a posterior thick band. The disc is primarily avascular and has little sensory innervations ¹.

The articular disc being a soft tissue structure, conventional radiographs cannot be used to diagnose articular disc related disorders. Computerised tomography[CT] also provide little details regarding the articular disc. Ultra sound imaging may be used for evaluating disc related problems but the accuracy is debatable, as the ultra sound images are obscure. Magnetic resonance

imaging on the other hand provides minute and sharper details about the discal anatomy, position, and any related degenerative changes ². This article attempts to evaluate and highlight the role of MRI in the accurate diagnosis of TMJ disorders.

CASE 1

A female patient aged 38 years reported with a constant pain in the right TMJ region of 1 year duration. History revealed that she had sustained a blow to the right side of the face in a road traffic accident 5 years previously. Inspection of the right and left TMJ showed no signs of preauricular swelling or any injury scars. Even though deviation of the mandible to the left side on opening the mouth was noticed the extent of opening was normal (Fig 1 A). Clicking sound could be elicited from the right TMJ on opening the mouth. There was no evidence of muscle spasms in the muscles of mastication. Intra oral examination revealed normal occlusion with full complement of teeth. Panoramic radiographs showed no obvious changes except an increase in the joint space on the right side. The patient was advised an MRI. MRI taken using A Siemens Magnetom Avento 1.5 Tesla, machine, revealed on the right side an anteriorly displaced articular disc. The posterior band of the disc was flattened and showed degenerative changes [fig 1]. The disc was normally positioned in the closed mouth position [fig 2]. The left side showed the articular disc in normal position and configuration in both open and closed mouth

1. Sr lecturer department of Oral medicine & Radiology, PMS College of Dental Science & Research, Trivandrum

2. Professor, Department of Oral medicine & Radiology, Saveetha Dental College, Saveetha University .Chennai

Address for Correspondence:

Dr Alex D Vineet

95A, Kennedy Street, Nagercoil 629001

position[fig 3&4] . based on the MRI findings a diagnosis of anterior disc displacement with reduction was made . The patient was managed symptomatically with physiotherapy and analgesics.



Fig 1: Case1 (A & B)

A - Extra Oral Picture showing no restriction in mouth opening
 B - MRI - Right side open mouth



Fig 2: Case 1-Right side closed mouth

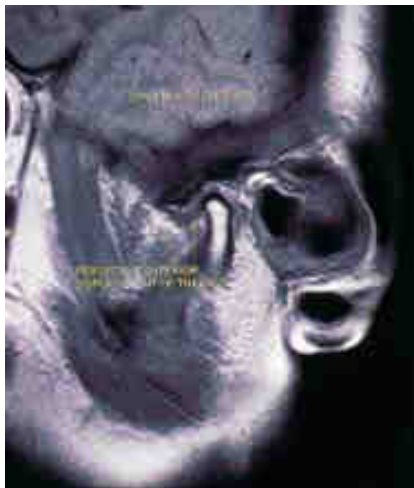


Fig 3: Case 1-Open mouth left side

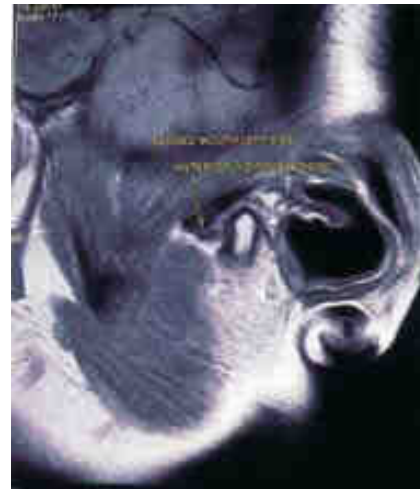


Fig 4 : Case 1-closed mouth left side

CASE 2

A 40 year old female patient reported with severe pain in the left TMJ on opening and closing the mouth. History revealed that the patient had tolerable pain for the past one year, which had aggravated 3-4 days prior to reporting. Inspection showed no pre auricular swellings or any scars. Mouth opening was normal but painful and, there was deviation of the mandible to the right side on opening (Fig .5A). Clicking sound could be elicited from the left TMJ on opening and closing the mouth.

There were no evidence of muscle spasms in the muscles of mastication. Intra oral examination revealed normal occlusion with full complement of teeth. Panoramic radiographs showed no obvious changes except an increase in the joint space on the left side. The patient was advised an MRI. MRI taken using a Siemens Magnetom Avento 1.5 Tesla, machine, revealed on the left side, an anteriorly displaced articular disc in the open mouth position [fig 5] and no reduction in the disc position in the closed mouth position [fig 6]. The articular disc on the right side showed normally position in both open and closed mouth position[fig 7&8]. Based on the MRI findings a diagnosis of “anterior disc displacement with out reduction on the left side” was made. The patient was managed with analgesics and flat plane



*Fig 5 : Case2- (A & B)
A - Extra Oral Picture showing normal mouth opening
B - MRI - Left side open mouth*



Fig 8: Case2- right side closed mouth



Fig 6: Case 2 -Left side closed mouth



Fig 7: Case 2:Right side open mouth

occlusal stabilization splint ,which yielded good results.

DISCUSSION

Temporomandibular joint disc displacement is broadly classified into i] anterior disc displacement with reduction , ii]anterior disc displacement with intermittent locking , iii]anterior disc displacement with out reduction , iv] posterior disc displacement³.

Anterior disc displacement with reduction is the commonest form of disc displacement ⁴ . The clinical findings in this type of disc displacement include clicking of the joint on the affected side accompanied by pain. Deviation of mandible at the start of the opening cycle prior to the click with correction to the mid line after the click may also be noted⁴. The symptoms of pain and dysfunction associated with this disorder usually resolve with minimal non invasive therapy.

Anterior disc displacement with out reduction also known as the closed lock, is the first sign of any TMD which occurs following a trauma or a long standing habit of bruxism ⁵. Clinical symptoms are characterized by pain in opening and closing the mouth , limited lateral movement of the mandible and pain on palpation over the affected joint. Clicking sounds may be appreciated during opening or closing . Anterior disc displacement with out reduction is managed with analgesics for pain and flat plane stabilization splint ⁶.

In both the cases reported here the signs and symptoms were almost the same except for the clicking in case no 2 where it could be appreciated both while opening and closing the mouth. The panoramic x ray findings were also non confirmatory . MRI in both cases could differentiate with out doubt the anterior disc displacement with reduction [case no. 1] and anterior disc displacement without reduction[case no 2].more over it could also identify the degenerative changes in case no 1. Because of MRI correct diagnosis could be made and correct treatment strategies could be adopted in both the cases

CONCLUSION

To conclude , TMJ disc disorders can be diagnosed only by MRI,which at present is the best tool available that can pinpoint the exact disease process , enabling proper diagnosis and help in considering treatment options. Hence the authors are of opinion that suspected cases of discal disorders should be subjected to MRI for accurate diagnosis and treatment planning.

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CASE REPORT**Cast Partial Denture with altered cast technique -
A Case Report**Rohit.K.Menon¹, T. Sreelal², R. Harshakumar³, R. Ravichandran⁴**ABSTRACT**

The altered-cast technique, also known as the corrected-cast technique, for distal extension removable partial dentures (RPD), is not routinely utilized by dentists. This technique of fabricating removable partial dentures, originally described more than 60 years ago, improves the residual-ridge-to-dentition relationship of the prosthesis. This potentially increases patient satisfaction while preserving the remaining supporting structures. Some advantages of the altered cast impression procedure include improved stress distribution, decreased food impaction, decreased torquing of the abutment teeth and preservation of the oral structures, all of which lead to patient satisfaction. The technique allows the ridge, recorded in a functional form, to be related to the teeth so that when the prosthesis is seated, it derives support simultaneously from the teeth and the denture base. This article describes how a patient with bilateral partial edentulousness was successfully restored with the help of altered cast technique.

KEY WORDS: Cast partial dentures, altered cast.

Introduction

Patients with no remaining teeth posterior to the existing natural dentition is a very common condition encountered in clinical practice. This situation can be unilateral or bilateral and are classified as class II and class I cases respectively according to the classification system given by Kennedy³. The unique problem that a dentist encounters in such a condition is the difference in resiliency of the soft tissue on the posterior aspect on which the denture base rests and the hard tooth structure which is situated anteriorly. A functional Impression technique has been advocated by various authors to counteract this situation³. An altered cast technique is an effective method of making a functional Impression in a distal extension situation.

Case Report

A 48 year old female reported to the Dept of Prosthodontics, Govt Dental College, Trivandrum with missing teeth in the lower arch. The teeth missing were 47, 46, 35, 36, 37. Since a class I distal extension situation was encountered, the first treatment option was an implant supported restoration in the posterior region. The above treatment plan was rejected by the patient on the basis of the surgery involved and cost factors. The final treatment plan which was agreed upon was a removable partial denture with cast metal framework. Occlusal rests and guiding planes were fabricated on the distal aspect of 45 and 34. A preliminary impression was made with irreversible Hydrocolloid.(Algiplast). On the primary cast, a metal framework was fabricated and a lingual plate was used for indirect retention.(Fig 1) Acrylic resin tray material was added to the framework to form a base that covers the relevant edentulous area. (Fig 2) which should be rigid. At chairside, the periphery of the base was inspected for under or over extension and adjusted accordingly. The surface was dried and medium viscosity silicone impression material was added and the frame work was placed in the mouth and seated by pressure on occlusal rests only. No finger pressure was applied

1. Post graduate student

2. Professor and Head

3. & 4. Professor

Department Of Prosthodontics,
Government Dental College, Trivandrum, Kerala

Address for correspondence :

Dr. Rohit K Menon

Nandanam, PRA 22, Padinjatil lane, Kumarapuram,

Medical college.P.O., Trivandrum-695011

Phone: 09633851094, email: rohitprosth@gmail.com

on the base area. Patient was instructed to make the necessary movements and framework was removed from the mouth. (Fig 3).The jaw relation was completed at the same appointment by adding wax onto the framework. The posterior edentulous areas were cut off from the original cast and the framework was seated on it and the cast was poured with dental stone (Fig 4). The prosthesis is then fabricated in the conventional manner. (Fig 5)



Fig 1 - Cast framework



FIG 2-Acrylic resin



FIG 3-Final impression



FIG 4-Sectioned casts



FIG 5-Final prosthesis for insertion

DISCUSSION

The most important consideration in designing a distal-extension removable partial denture, or RPD, for optimum function is, as DeVan¹ stated in 1936, to “strive to preserve that which remains, rather than to meticulously replace that which is missing.” An extension base RPD made using the altered cast impression technique helps create an environment in which the teeth and the edentulous tissues support the base as compatibly as possible². The result is a potentially more stable RPD that improves the support for the occlusal relationship of the opposing dentition and the RPD restoration³. The altered cast impression technique is relatively simple to incorporate in the fabrication of the RPD⁴. The partially edentulous mouth may respond well to any number of treatment modalities and philosophies. However, this technique has the potential benefits of reducing the number of postoperative visits, preserving the residual ridges, improving stress distribution, decreasing food impaction and decreasing the torquing of abutment teeth—all of which lead to increased patient satisfaction. While the technique may necessitate two additional

patient visits during the fabrication phase of the RPD, the benefits make it a worthwhile technique⁴. When a distal extension saddle is constructed on a cast poured from a mucostatic impression, the differential in the support offered by the abutment tooth in its relatively incompressible periodontal ligament and the more displaceable denture bearing mucosa is the greatest. As a result the tendency for the distal extension saddle to sink under occlusal load and pivot about the rest on the abutment is increased^{5,6,7}. The objective of the altered cast technique is to reduce the support differential for a distal extension saddle by obtaining a compression impression of the edentulous area under conditions which mimic functional loading. The distribution of load from the denture to the residual ridge is thus improved and the denture is more stable.

CONCLUSION

A well-made removable partial denture that has appropriate extensions, borders and ridge-to-dentition relationship will benefit the partially edentulous patient by providing increased comfort and improved dental function. The altered cast technique is an effective, but technique sensitive method for managing a distal extension situation in clinical practice. But the merits of this method outweigh the stones in the path.

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REVIEW

Role of dental professionals in prevention and control of oral cancer

Gigi Thomas

ABSTRACT:

Oral cancer is the most common cancer in India and the third most common cause of cancer related death. Primary prevention, early detection and appropriate treatment are important control measures. Dental professionals have an important role and responsibility in oral cancer control. They can engage in primary prevention activities by creating awareness among people and by bringing changes in the life style of individuals by counseling on an individual basis. Oral cancer is an ideal disease for screening. By their prompt and early diagnosis, dentists can detect oral precancers or oral cancers very early thereby making treatment simple and cost effective. The dentist, by timely intervention, can improve the quality of life of the oral cancer patient during and after treatment. Close follow up of patients after treatment to detect signs of recurrence or second primary tumours is essential. Dentists should routinely provide oral cancer screening for all their patients.

KEYWORDS: Depression, Stress, Psychoneuroimmunology, Cancer.

Advances in the control of communicable diseases have led to an improved life expectancy and increase in the proportion of elderly persons. In India, the life expectancy at birth has steadily risen from 45 years in 1971 to 62 years in 1991, indicating a shift in demographic profile.¹ It is estimated that life expectancy of Indian population will increase to 70 years by 2012-25². Such changes in the age structure would alter the disease pattern associated with ageing and increase the burden of cancer, cardiovascular and other non communicable diseases.

Oral cancer is one of the most common cancers in the world.³ The highest incidence rate of oral cancer have been observed in the Indian sub-continent. It is the most common cancer among Indian men and the third most common cause of cancer related death in the country. In

India, 83,000 new oral cancer cases and 46,000 deaths from oral cancer occur every year and the incidence of this cancer is on the increase.^{3,4} As squamous cell carcinoma accounts for 90% of oral cancer, they can be easily detected as irregularities on the mucosal surface such as verrucous, proliferative, ulcerative or infiltrative type of lesion. In spite of that, the paradox is that about 70% of oral cancers are diagnosed in advanced stages (Stage III and IV). Delay in diagnosis allows tumours to invade deep into local structures and spread to regional lymphnodes in the neck resulting in high mortality. The treatment of oral cancer is simple, affordable, cosmetically more acceptable and outcome much better if detected at an early stage. Treatment of early stage disease (Stage I and Stage II) involves surgery and/or radiation therapy. Both forms of local treatment result in 75% to 90% 5-year survival rates in patients with early stages.⁵ Patients with advanced-stage disease (Stage III and IV) typically requires a "combined modality" approach utilizing radiation, chemotherapy and/or surgery. A total of 35% to 55% of patients with advanced stage cancer remain disease free 3 years after standard treatment. However, locoregional recurrence develops in 30% to 40% of patients

1. Associate Professor,
Division of Community Oncology
Regional Cancer Centre, Trivandrum

Address for correspondence:

Dr. GIGI THOMAS

Associate Professor, Division of Community Oncology
Regional Cancer Centre,
Tel:0471-2522299 Fax-91-471-2447454,
Email: drgigithomas@gmail.com

and distant metastases occurs in 20% to 30% of patients.⁶ Local or regional recurrence is again usually treated with a combination of surgery, radiation and/or chemotherapy and metastatic disease is treated with chemotherapy. In addition to the mortality, the associated morbidity found in advanced disease has a profound effect on the patient's quality of life and on our health system. Primary prevention strategies along with early detection of oral cancer and state of the art treatment helps to attain improved control. Dental professionals have an important role and responsibility in oral cancer control.

Primary prevention is the most cost effective long term strategy for cancer control. It involves the removal of risk factors so as to reduce the incidence of disease. The most important risk factor for oral cancer are chewing tobacco, smoking, consumption of alcohol and poor diet. All dental professionals have an obligation and excellent opportunity for primary prevention. Oral cancer awareness messages can be delivered to communities or targeted at specific sections of population such as college and high school students, teachers, office workers or employees of a factory. Tobacco/alcohol habitués form the high risk group especially those above the age of 40. Dentists can also give counseling on an individual basis when a tobacco or alcohol habitué is identified during oral examination. In such cases, the person should be made aware of the hazards of tobacco/alcohol and advised to stop the deleterious habit. If needed, the dentist should give assistance to quit the habit. They should be encouraged to incorporate plenty of green and yellow vegetables and fruits in their diet daily so as to reduce the risk of oral cancer. Many studies have shown that intake of protective nutrients is more effective when these are derived from natural food stuffs rather than from synthetic food supplements.⁷ This is particularly important in smokers and drinkers.⁸ Hence patients should be advised to choose most of the food from plant sources and limit consumption of high fat foods, particularly from animal sources.

Secondary prevention is the detection of the disease at an early stage in its natural history at which intervention leads to cure and minimizes the morbidity and mortality associated with the disease. Early detection of oral cancer, ie, the identification

at an early stage in asymptomatic individuals by screening leading to early diagnosis is a great factor in the successful control of cancer. Delay in diagnosis is partly due to ignorance and negligence of the patient by minimizing the seriousness of symptoms and not seeking professional help due to fear. But delay has also been due to the failure of arriving at a diagnosis by the first doctor who saw the patient. It is very important that the dental professional be well informed regarding the early signs and symptoms because early diagnosis for the patient means a life free from the morbidity and mortality of oral cancer. The often insidious and silent onset of early cancer must be kept in mind while examining the patient, as characteristic clinical signs are not always essential for the diagnosis of malignancy. Pain, loosening of teeth, paresthesia and roentgenographic changes having no identifiable local etiologic factors must be considered as possible symptoms of cancer. When bone is involved, radiographic examination is of great value in the recognition and identification of the tumor because abnormal radiological findings in the region can be appreciated at an early stage or as the first indication before other clinical signs manifest. Sometimes, radiography reveals evidence of quite unsuspected malignant tumours, both primary and metastatic. Oral cancer is often preceded by oral precancerous lesions and conditions like leukoplakia, erythroplakia, lichenplanus and submucous fibrosis. However, only a small proportion of patients with these lesions progress to frank cancer. The main purpose of identifying precancers is to prevent the subsequent possibility of a malignant transformation by initiating adequate treatment. Hence early detection and treatment of oral precancers will prevent progression on to oral carcinoma.

Oral cancer is an ideal disease for screening and early detection as oral cavity is an easily accessible site. Oral cancer can be detected at an early stage by visual inspection of the oral cavity by trained health professionals and by practicing mouth self examination in high risk groups. Visual examination of the oral cavity by trained professionals and health workers is the most widely used early detection procedure for oral cancer. Except for two major studies, one from Cuba and the other from India, all others were done in selected clinical or industrial settings.

The nation wide oral cancer screening programme in Cuba, which has been running since 1984 involves annual oral examination of subjects aged 15 years and above by dentist has not shown any evidence of reduction in mortality.⁹ This study was criticized for poor participation rate and in practice only an opportunistic examination of subjects reporting for dental problems was carried out. The proportion of eligible individuals examined did not exceed 21% in males and 31% in females in any given year up to 1990. Another cross sectional study from Cuba revealed 33% reduction in the incidence of advanced oral cancer in subjects with a history of having had oral examination carried out by dentists, indicating that oral visual examination results in protection from a diagnosis of advanced oral cancer.¹⁰ The protection increased to 59% in those who had two or more screening examinations. This protection lasted for three years following an oral visual inspection. However no reduction in mortality was observed in this study.

In a cluster randomized community based control trial carried out in the Trivandrum District, Kerala, a 34% reduction in oral cancer mortality was observed among tobacco and / or alcohol users using oral visual screening and subsequent evaluation of the oral lesions.¹¹ Since oral visual inspection is an integral part of any physical examination during routine health care interactions, visual screening for oral cancer can be easily and effectively used especially in high risk individuals.

The public can be educated on mouth self examination. The examination involves intra oral observation by using a hand held mirror and reporting to the doctor when any abnormality is noted. Mouth self examination can improve the awareness of the individuals in monitoring their own health. Very little information on mouth self examination or health education to promote mouth self examination is available, especially in high risk population groups. In a study to evaluate the feasibility of mouth self examination in India, 36% of 22,000 subjects who were taught mouth self examination reportedly practiced the test and 274 subjects visited the clinic within two weeks of a promotion campaign. There were 89 precancers and 7 oral cancers.¹² However, there is no information available on long term feasibility and

detection rates with self screening in oral cancer detection.

In all modern cancer centres, dentist is an important member of the oral cancer management team and works together with the other members to ensure the best possible outcome for the patient. By starting preventive measures, before, during and after cancer treatment, it is possible for the dentist to reduce the problems associated with cancer therapy and significantly improve the quality of life of the patient. Teeth in the high dose radiation field should be extracted, ideally, at least two weeks prior to initiating radiotherapy if they have periapical lesions, extensive caries or if they have moderate to severe periodontal disease (pocket depth of 5 mm or more).¹³ Prior to radiation treatment, endodontic and restorative procedures of carious teeth and complete oral prophylaxis should be done. Daily five-minute application of 1.1% Sodium Fluoride is recommended during and should be continued after the patient's radiation therapy. During therapy, dental visits should be scheduled weekly to follow the patient's oral health status closely. After the completion of radiation therapy, patients should maintain good nutrition and continue to follow an oral health self-care regimen to keep the teeth and gums healthy and to facilitate repair of any residual oral damage. After radical surgical procedures for treatment of oral cancer, the patient requires intra oral prosthesis for various defects of the hard and soft palate and jaw bones. By prosthetic rehabilitation, the dentists can improve the cosmetic and functional outcome which in turn can improve the quality of life of the patient.

Tertiary prevention refers to intervention designed to reduce recurrence of disease after treatment or to minimize the morbidity arising from treatment. When a patient treated for an oral cancer is found to have disease in the same site, during the first follow-up visit which is 2 months after treatment, it is considered as a residual disease because of incomplete removal of the primary lesion. If a new lesion develops in the same site six months after complete disappearance of the tumor it is considered as a recurrence arising in a field of altered mucosa. The concept of field cancerisation is that the patient's genetic predisposition and the life long accumulation of

potentially carcinogenic insults renders the patient and the anatomical area most affected at increased risk of cancer. Hence the whole of upper aerodigestive tract can be regarded as the susceptible field for oral cancer.¹⁴ Patients at highest risk for a second malignancy are those previously treated for oral cancer, accounting to 20% of patients over a 5-year period.¹⁵ Therefore, close follow-up of the patients after radiation therapy is mandatory to detect signs of recurrence or second primary tumors. Hence following oral cancer treatment, dental appointment should be scheduled bi-weekly in the first month, then once in a month for three months and later once in three months for the next year.

Though oral cancer can be diagnosed easily, clinically, with a fair amount of accuracy, there are some benign lesions that may present changes that may be easily confused with malignancy. Conversely, early malignancy may be mistaken for a benign change. Hence all lesions present for more than 2 to 3 weeks in the oral cavity that do not respond to the usual therapeutic measures must be viewed with suspicion and promptly biopsied to arrive at a definitive diagnosis.

Oral cavity is occasionally the site for distant metastasis from primary malignant tumours. Usually breast, lung, kidney, colon and prostate are the primary tumours which are metastatic to the oral cavity. Metastasis to the jaw bones are more common from breast and prostate cancer whereas lung and kidney cancers account for most of the soft tissue metastasis.¹⁶ Mandible, especially the molar area is more commonly affected in metastasis to the jaws. The commonest site of soft tissue metastasis is the attached gingiva.¹⁷ Early manifestation of the gingival metastasis resembles a hyperplastic or reactive lesion such as pyogenic granuloma or fibroepithelial polyp. Pain and swelling may be the presenting symptom. However, most lesions are asymptomatic and may be an accidental radiographic finding. The majority of jaw lesions are radiolucent. Radio opaque or mixed density lesions are occasionally seen, usually from breast or prostate cancer.¹⁸ Metastasis to the jaws or soft tissues of the oral cavity usually indicate widely disseminated disease and carry poor prognosis and majority of patients die in less than one year.^{18,19}

It is of utmost importance that any malignant condition be recognized at the earliest possible moment. In many cases, suspicion of malignancy does not dawn upon the dentist until it is too late for successful treatment. It is always better to suspect malignancy and be found wrong than not to suspect it and miss the correct diagnosis. There is a need for systematic updates in the form of continuing education in oral cancer control for dental practitioners. A study conducted in New York and North Carolina concluded that education at all levels of undergraduate, postgraduate and continuing education is essential in improving dental participation in oral cancer control.^{20,21} The American Cancer Society recommends a comprehensive oral cancer examination annually for people 40 years of age or older.²² Dentists are professionally responsible for providing a comprehensive oral cancer examination for all their patients. Ideally, every dental office should be an oral cancer prevention and detection centre with the focus that early detection saves lives.

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REVIEW

Chelitis Glandularis : A Review

R. Asish¹, Anita Balan²**ABSTRACT**

Cheilitis glandularis refers to an uncommon and benign inflammatory disorder of the submucosal glands in the lower lip. The condition is characterized by progressive enlargement and eversion of the lower labial mucosa. It is a chronic progressive condition.

KEYWORDS

Cheilitis glandularis, labial mucosa, minor salivary glands,

INTRODUCTION

Cheilitis glandularis is rare inflammatory condition of minor salivary glands. It chiefly occurs in lower lip. It has been associated with a heightened risk for the development of Squamous cell carcinoma.

DISCUSSION

Cheilitis glandularis is a chronic progressive condition with inflammation affecting lower lip.^{1,2,3,4,5,6} In 1870, von Volkmann introduced the term Cheilitis glandularis.⁷ The disorder predominantly affects adult males.^{8,9} The condition most frequently occurs between the fourth and seventh decades of life. The risk of dysplasia and carcinoma increases with age.^{10,11} This is because the characteristic eversion of the lower lip results in long-term chronic exposure of the thinner, more vulnerable labial mucosa to actinic influence.

Cheilitis glandularis sub classified into 3 types: simple, superficial suppurative, and deep

suppurative. The deep suppurative type has also been variously referred to as myxadenitis labialis or cheilitis apostematosa. The superficial suppurative type has been termed Baelz disease.^{7,11,12,13}

Cheilitis glandularis affects the lower lip almost exclusively. It also has been reported in the upper lip.¹⁴ It manifests as progressive, often multinodular enlargement, eversion, and induration. Initially asymptomatic lip swelling occurs with clear viscous secretion from dilated ductal openings on the mucosal surface. Salivary gland duct orifices may be dilated and appear as red or black puncta.^{4,11,15}

Lip enlargement is caused by inflammation, hyperemia, edema, and fibrosis. Surface keratosis, erosion, and crusting develop consequent to long-standing actinic exposure. The factitial trauma, excessive wetting from compulsive licking and drying could serve as chronic aggravating factor.

Cheilitis glandularis can be considered a potential predisposing factor for the development of actinic cheilitis and squamous cell carcinoma.^{1,4,11} Carrington and Horn reported a case of an elderly man developed Cheilitis glandularis related to actinic damage following vermilionectomy for squamous cell carcinoma of the lower lip.¹ So clinical investigation in cases of cheilitis glandularis

1. Assistant Professor,
Dept. Oral Medicine & Radiology,
Govt. Dental College, Kottayam.

2. Professor & Head
Dept. Oral Medicine & Radiology,
Govt. Dental College, Calicut.

Address for Correspondence

Dr. ASISH .R

Assistant Professor, Dept. Oral Medicine & Radiology,
Govt. Dental College, Kottayam.

to rule out neoplastic, immune suppressive or inflammatory changes are important.

DIAGNOSIS

In acute or chronic suppurative cases, bacterial culture and sensitivity testing is indicated for selection of appropriate antibiotic therapy.^{6,7} Chronic angular cheilitis or erosive surface changes may be indicative of chronic candidal infection and appropriate antifungal therapy is performed.

Lip biopsy is indicated to rule out specific granulomatous diseases that predispose to lip enlargement. It is also helpful in establishing a definitive diagnosis.^{5,12,16} An incisional biopsy specimen should consist of a wedge or punch of lip tissue with surface epithelium submucosal salivary glands.

No pathognomonic features of Cheilitis glandularis are seen at the microscopic level. It can reflect a broad spectrum of possible histologic changes. Alterations can be seen in both the surface epithelium and the submucosal tissues. The epithelium can be essentially normal or show evidence varying degrees of atypia or dysplasia to frank carcinoma. The minor salivary glands may appear normal or exhibit various changes of nonspecific sialadenitis like atrophy of acini, ductal ectasia with or without squamous metaplasia, chronic inflammatory infiltration and interstitial fibrosis.^{11,18,19} Suppuration present in cases that involve bacterial infection. Other findings include stromal edema, surface hyperkeratosis, erosion and ulceration.

MANAGEMENT

The treatment pattern is based on diagnostic information from histoathologic analysis, the identification of etiologic factors, and attempts to alleviate causes.^{5,10,15,20} Administration of an antihistamine may effect temporary reduction in acute nonpurulent swellings. Suppurative cases require appropriate antimicrobial treatment along with intralesional or oral corticosteroid therapy. Topical 5-fluorouracil is useful for treatment of dysplastic forms of Cheilitis glandularis.

Debulking with surgical cheiloplasty is indicated in cases with severe fibrosis and induration.^{12,16} Cheiloplasty is also used as a

prophylactic measure for reducing the risk of actinic injury. Medications indicated in cases of xerostomia believed to be the cause of lip dryness. Instruction in measures for sun protection is also required.

CONCLUSION

Cheilitis glandularis has been associated with dysplastic epithelial changes and increased risk for the development of squamous cell carcinoma. So the dentist can play an important role in early diagnosis and management.

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REVIEW

Porcelain Laminate Veneers - an update

Sangeeth K. Cherian

ABSTRACT

Porcelain laminate veneers has many advantages. Porcelain in the glazed state is the most esthetic restoration in dentistry. The introduction of high strength dentine bonding agents and reliable resin cements had accelerated the importance of bonded porcelain in esthetic dentistry. Diagnostic mock-ups help to address the concerns of the patient. This article updates the systematic approaches needed in the fabrication of laminate veneers.

KEY WORDS : Laminate veneers, bonded ceramics, esthetics.

Introduction

Dr Charles Pincus in 1930's used thin labial porcelain veneers to enhance the appearance of Hollywood actors for close up photographs in the movie industry. Rochette in France, in 1975 proposed the use of bonded ceramic restorations in the anterior dentition.¹ Laminate veneer is a layer of tooth coloured material that is applied to a tooth for esthetically restoring localized or generalized defects or intrinsic discolouration. It is one of the most conservative and aesthetic techniques that we can apply when restoring human dentition². The success of porcelain laminates is not achieved through the use of so called high technology or advanced materials but simply by associating two traditional materials such as composite resin and porcelain. Laminate veneers allow more tooth substance to remain intact, especially in the palatal surface.

Even though Rochette had already proposed the use of bonded ceramics to treat fractured teeth, the real potential of porcelain laminates has been underestimated until recently. Long term

retrospective studies indicated that the success rates of veneers are as high as 94 to 95%.^{3,4} The main challenges in this is visualizing the aesthetic outcome and providing the best tooth preparation to the ceramist to allow for the best esthetic result.

Indications

A - Teeth resistant to bleaching

- a. Tetracycline discolouration
- b. Teeth with no response to external or internal bleaching.

B - Major morphologic modifications

- a. Peg shaped teeth.
- b. Diastema and interdental triangular spaces.
- c. Augmentation of incisal length and prominence.

C - Extensive restorations

- a. Extensive coronal fracture.
- b. Extensive loss of enamel by erosion and wear.
- c. Generalized congenital and acquired malformations.

Contraindications

The porcelain laminate veneers would be ill advised if there is insufficient amount of enamel for bonding (despite improved dentine bonding systems). For example, tooth with extensive caries

Senior lecturer
Dept of Prosthodontics,
Sree Mookambika Institute of Dental Sciences, Kulasekharam.

Address for Correspondence
Dr. Sangeeth K. Cherian
Senior lecturer, Dept of Prosthodontics,
Sree Mookambika Institute of Dental Sciences, Kulasekharam.

or fracture, heavily restored teeth, severe enamel hypoplasia and short clinical crown. It is also contraindicated in severe bruxers, darkly stained teeth, extensive periodontal bone loss, extreme anatomical deviations, and severe malocclusion.

Advantages of porcelain laminate veneers are that they offer excellent esthetics and durability. Good bond strength with enamel can be achieved. They have good marginal integrity and are biocompatible with gingival tissue. The placement procedure is technique sensitive and time consuming. They are extremely fragile and are difficult to manipulate.

Clinical procedure

When the bonded porcelain laminate veneers were introduced in 1980's some operators preferred not to remove any tooth substance and wished to have a totally reversible restorative technique. But problems such as over contouring associated with poor plaque control and weak bonding with superficial aprismatic enamel were soon recognized. Where as others proposed a full deep chamfer preparation on the labial aspect of teeth and most or all of the way through the interproximal contact areas.⁵

Tooth preparation should be considered in five distinct aspects.

- ▶ Labial reduction
- Interproximal extension
- Sulcus extension
- Incisal or occlusal modification

Lingual reduction

The initial phase of treatment should include preventive, periodontal, and operative aspects, which are too often neglected. Diagnostic wax up and corresponding mock-ups significantly influence this phase. Bonding to enamel rather than dentine provides the best /strongest bond values when we want to bond porcelain to tooth structure.^{6,7} It is important to identify the enamel facial wear pattern of teeth to be restored. When the residual enamel is thin, as in the case with aged or worn incisors, preparation methods using the preexisting tooth surface as a reference for enamel reduction are absolutely contraindicated. A uniform tooth reduction of at least 0.5mm is performed using

preexisting tooth structure as a guide; consist of taking silicon index of the labial surface of the unprepared tooth.

Diagnostic mock-up

Predicting the treatment outcome is essential when planning a substantial esthetic rehabilitation⁸. The simplest method involves fabrication of an acrylic template directly in the patients mouth or on an intact study model. The practitioner may begin to visualize and realize the aesthetic final outcome and share this information with the patient.^{9,10} Subsequently, the patient can easily appreciate this mock-up. The new volume of the teeth must be approved by the patient, resulting in total agreement on the tooth shape, size and length. This mock-up can be temporarily bonded by enamel spot etching and patient can be allowed assessment for 1 to 2 weeks.

Early tooth preparation technique for laminate veneers unfortunately did not promote optimal preservation of enamel. Reduction burs with calibrated diamond rings were proposed to cut enamel, and depth control was based on the preexisting tooth surface. When the initial enamel was already thin, reduction based on such depth cuts led to major dentin exposure¹¹. A silicon index made on the mock-up can be used as a guide for the preparation. Before reducing the enamel, placement of the facial index reveals areas of the tooth surface that will require only minimal preparation. This direct or indirect mock-up has been called aesthetic pre-evaluative temporary.

Axial reduction

Different diameters of tapered, round ended burs designed for traditional fixed Prosthodontics can be used for axial reduction. A small diameter bur is used to cut the proximal reduction groove. The medium diameter bur is used to create facial reduction grooves. Three vertical grooves are recommended on central incisors and canines, two grooves on lateral incisors. The dept of each groove is individually controlled using silicon guide. The silicone index should be used to check the depth cuts. A large bur is used for gross axial reduction. This prevents the repenetration into the groves there by avoiding wavy surfaces. A uniform space of 0.5 to 0.7mm should be generated by this method, ultimately producing a uniform thickness

of ceramic in the labial and proximal surfaces. An incisal clearance of about 1.5mm is required and can be checked using the palatal half of the silicon index in place.

Cervical and proximal margins

In the cervical and proximal areas, the creation of a light chamfer without internal line angles is internationally accepted. This can allow maximum preservation of enamel and will therefore prevent chances of marginal leakage. A paragingival margin is a preferred one, but in cases of closing diastema or interdental triangles, an intra sulcular margin will allow a progressive emergence profile. The amount of interdental penetration depends on the type of interdental contact. Light contact can be removed by conservatively extending the preparation. Except in wrapping old class III restorations and diastema or interdental triangle correction, sacrifice of interdental tooth structure should be avoided. Establishment of interproximal and incisal wraparound facilitates esthetic definition in the incisal zone and facilitates easy placement of the final restoration.

Definitive impression

As the margins are usually in the Accessible areas, it is easy to capture the preparation in the final impression. Accurate reproduction of the surrounding soft tissues in the final impressions is imperative to build up proper shapes and contours. Polyvinyl siloxanes of addition curing are indicated due to their good elasticity and resistance to tearing. They also are dimensionally stable for multiple pours. A gingival deflection cord of appropriate thickness should be used at least 5 to 10 minutes prior to impression making to allow proper deflection of the marginal gingival. A one step double mix impression procedure is adequate for appropriate reproduction of the preparation and surrounding tissues. The gingival deflection cord is removed prior to injection of light –body impression material into the sulcus. The tray with more viscous material is placed over it.

Provisional

Provisional veneers can be fabricated in the same manner as the diagnostic mock-up. A self cure acrylic resin can be used for this. Composite materials or stiff resins are not recommended because they are too brittle. A provisional can be

made with a single mix of appropriate shade of the acrylic resin loaded to the silicon index and pressed over the teeth. This method results in a provisional with uniform shade and opacity. Minor touchups with stains and glazing can produce a favorable esthetic outcome. After spot etching of the enamel the provisional can be luted with adhesive cements.

Luting

Laminate veneers can be luted using a regular light curing restorative composite with an extended curing mode. This provides unlimited working time, favorable biomechanical properties and colour stability.¹² There is not much evidence on the advantage of using dual cure cements.¹³ A try in should be done before luting as it enable to visualize the final outcome before it is being fixed.

The laminate veneers can be easily handled using a flat-ended instrument and sticky wax. The internal surface of the ceramic is etched with 10% hydrofluoric acid for 90 seconds and rinsed thoroughly. This etched porcelain surface must be dried before the silane coupling agent is applied. Complete evaporation of the solvent can be achieved using a hair dryer. The tooth enamel is conditioned with 37% phosphoric acid for 30 seconds, followed by rinsing and drying. The tooth surface is coated with adhesive resin, followed by gentle air thinning. The veneer which is coated with the adhesive resin is slowly seated with gentle finger pressure along the path of insertion.

Excess of the resin can be removed with the tip of an explorer guided in a cutting motion parallel to the margin to avoid removal of resin from the marginal joint. A clean applicator brush can be used to eliminate the excess of resin. Excess resin can be easily chipped off with a scalpel following polymerization. The margins can be cured after covering the composite with a layer of glycerin gel to avoid oxygen inhibition during polymerization. Glycerin is water soluble and can be easily rinsed off. Curing is done from labial, lingual, and proximal aspects. The occlusal relationship should be examined in centric occlusion, mandibular protrusion and lateral excursions. Adjustments can be made with fine diamond points used with water coolants. The adjusted areas must then be polished.

Maintenance

The same brushing technique used for natural teeth can be used for laminate veneers. Scaling can be done with hand held instruments like curette or scaler, with gentle movement only when indicated. Careful movements should be made parallel to the gingival contour. Root to crown movement should be avoided as it could easily chip the margin or ditch the interface. Ultrasonic scaler and air abrasive should never be used over the laminate veneers as it can cause chipping or cracking. Air abrasion can harm the glaze and can lead to pitting and staining. Heavy stains on accessible margins can be removed with fine silicon points.

Summary

In the modern world more and more concern is for esthetics and the minimal invasive techniques. The concerns of the patient has to be born in mind while planning a esthetic restoration. Excellent communication is a must among the dentist, patient and ceramist for a better esthetic outcome. By all means the remaining enamel should be preserved to obtain a predictable bond strength. Mock ups and silicon index should be used to obtain best aesthetic, phonetic and functional outcome. Preparation skill added on with the good impression procedures provides a quality restoration. Proper cementation and after care will definitely improve the longevity of the restoration.

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SHORT REVIEW**Hand Foot and Mouth Disease : A Brief Review**

Suma Samuel

ABSTRACT

Hand, foot and mouth disease (HFMD) is a common syndrome affecting infants and children caused mainly by Coxsackie A and Enterovirus. Typically occurs in small epidemics some times the outbreaks are large with severe complications and a few deaths. It is moderately contagious. Often confused with foot-and-mouth disease (also called hoof-and-mouth disease), of sheep and cattle, the disease is characterized by oral ulcerations. Neurologic and respiratory complications may occur.

KEY WORDS : Hand foot and mouth disease, Coxsackie A, Enterovirus

Hand, foot and mouth disease (HFMD) is a common syndrome affecting infants and children and is caused by intestinal viruses of the Picornaviridae family, the most common strains being Coxsackie A virus and Enterovirus 71 (EV-71)^{1,2,3,4,5}. The causative agents were initially Coxsackie virus type A 16 and related serotypes. The situation changed drastically about thirty years ago with the advent of a new aetiological agent, Enterovirus type 71 (EV 71), which has caused very large outbreaks with severe complications and a few deaths^{2,3,4}.

HFMD is moderately contagious and spreads through direct contact with the mucus, saliva, or feces of an infected person with unwashed, virus-contaminated hands and by contact with virus-contaminated surfaces. It typically occurs in small epidemics in nursery schools or kindergartens, with an incubation period of 3–7 days. It is uncommon in adults, except in those with immune deficiencies. The outbreaks occur most often in the summer and early fall.

CONFUSING TERMINOLOGY:

HFMD is not to be confused with foot-and-mouth disease (also called hoof-and-mouth disease), which is a disease affecting sheep, cattle, and swine, and which is unrelated to HFMD (but also caused by a member of the Picornaviridae family). Humans do not get the animal disease, and animals do not get the human disease^{6,7}.

Clinical Features

The early symptoms of HFMD are: fever, headache and irritability in infants and toddlers, Soon painful oral ulcers (in the throat, gingivae, tongue, and palate), a non-pruritic body rash (which soon ulcerates on the palms of hands and soles of the feet), loss of appetite, sore throat, fatigue, vomiting, malaise, diarrhoea and referred ear pain occur. Very often, ulcers may also be present on the skin of the buttocks of infants and small children. Recent years have seen patients having only oral ulcers, without any of the other signs^{6,7}.

Neurological complications (encephalitis, meningitis, or acute flaccid paralysis) or pulmonary edema/pulmonary hemorrhage) are very rare and when present, require hospital admission and appropriate medical treatment immediately. Febrile seizures and dehydration are other complications.

Professor
Dept. of Oral Medicine & Radiology,
Pariyaram Dental College, Kannur

Address for Correspondence

Dr. SUMA SAMUEL

Professor - Dept. of Oral Medicine & Radiology,
Pariyaram Dental College, Kannur

Diagnosis of Hand, Foot, and Mouth Disease:

The patient’s age, the symptoms reported by the patient or parent, and the appearance of the rash and sores are usually sufficient to diagnose the condition. Samples from a throat swab or stool may be sent to a laboratory to test for the virus to identify the causative strain. However, it can take 2–4 weeks to obtain the test results.

Treatment:

There is no specific treatment available for hand, foot and mouth disease. Individual symptoms, such as fever and pain from the sores, may be eased with the use of antipyretics and



Fig.3 : Fluid filled blister on skin of finger



Fig.1: Multiple small ulcers on palate.

soothing agents such as calamine with antihistamine lotions. Infection in older children, adolescents, and adults is normally very mild and lasts around 1 week or more. Luke-warm baths will also help bring temperature down and soothen pruritis. Salt water mouth rinses may be soothing if the child is able to rinse without swallowing.

Prevention of Hand, Foot, and Mouth Disease:

Specific preventive measures for HFMD are not available, but the risk of infection can be lowered by following good hygiene practices. They include washing hands frequently and correctly, cleaning and disinfecting dirty surfaces and soiled items, and avoiding close contact with persons with HFMD.

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Fig.2 : Superficial ulcers with bright red halo (caused by rupture of vesicles)on sole of foot.

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SHORT REVIEW

The Killing Act

Vijay Mathai

ABSTRACT

An increasing number of teeth are being root canal treated nowadays. The dentists are responsible to a certain extent for the greater number of teeth undergoing root canal treatment. This article discusses some of the ways in which the dentist can harm the teeth resulting in pulpal death and subsequent root canal treatment.

KEYWORDS: Pulpal death, Root Canal treatment

Introduction

With the increasing trend towards preservation of teeth, more teeth are being saved by root canal treatment than ever before. The dentist often contributes to the increase in the number of root canal treatments being done. It can be due to the materials, instruments or even the technique used by the dentist.

1. Use of dull rotary instruments and aggressive or dry tooth cutting

By using dull or worn out rotary cutting instruments, efficient tooth cutting is not possible. So more pressure is applied for tooth cutting. This can be harmful to the pulp. Failure to maintain sufficient waterspray in the airtor hand piece during tooth preparation can adversely affect the pulp². New carbide burs or rotary diamond instruments can be used for each patient along with significant water lavage for tooth preparation. Care should be taken to apply low loads on tooth during the tooth preparation.

2. Extensive tooth preparation for fixed prosthesis

More tooth reduction is required in case of all ceramic crowns. Sometimes the occlusion and contour also need to be corrected. The tooth preparation requires 1 to 1.5mm deep preparation on all surfaces except occlusal surface where the preparation is 1.5 to 2mm. deep. The situation becomes more complicated if an anterior tooth is out of the arch and labially placed. Such tooth preparations for all ceramic crowns may result in the preparation being very close to the pulp especially in young permanent teeth and in those with large pulp horns². Moreover, the use of resin based composite cement for luting causes more damage to the pulp. Meticulous care should be taken in the tooth preparation to avoid the preparation being very close to the pulp. An x-ray can be used as an aid. Use self-etch resin cements as the luting medium¹.

3. Deep veneer preparations

If the veneer preparation is deep and extends into the dentin and the total etch bonding system is used with resin cements for luting, it can cause tooth sensitivity and eventually pulpal death. Veneer tooth preparation should be made in enamel whenever possible with self-etch resin cements as the luting medium.

Professor,
Dept.of Conservative Dentistry and Endodontics,
Sree Mookambika Institute of Dental Sciences,
Kulasekharam, Kanyakumari, Tamil Nadu

Address for Correspondence:

Dr. Vijay Mathai M.D.S

Dept of Conservative Dentistry and Endodontics,
Sree Mookambika Institute of Dental Sciences,
Kulasekharam, K.K.Dist ; Tamil Nadu.

4. Tooth coloured composites as posterior restorations

When resin based composites are used for posterior restorations, it can sometimes cause post operative tooth sensitivity and subsequently the tooth can become non-vital due to the leaching monomer if proper curing of composite is not achieved. The improper use of bonding agents, liners and desensitising solutions can result in subsequent pulpal death. The use of glass ionomer as a liner is recommended under properly cured composite restorations. In deep preparations, calcium hydroxide can be used as the sub base. The proper bonding agent should be placed strictly following the manufacturer's instructions³.

5. Luting agent for indirect restorations

The use of total etch bonding system with resin cement for indirect restorations can result in pulp sensitivity and eventually pulpal death¹. Hence it is recommended to use self-etch bonding system for luting.

6. Provisional restorations

When provisional restorations are made with polymethyl methacrylate directly on deeply prepared tooth, it can damage the pulp due to the exothermic activity during the setting of polymethyl methacrylate¹. Hence provisional restorations can be fabricated on the model obtained from the impression of the prepared tooth.

7. Occlusal discrepancy

Problems can occur when the fixed prosthesis is in supraocclusion. Often the affected teeth cannot move far enough to get out of the zone of occlusal trauma. It can result in a widened periodontal ligament, mobile teeth, painful teeth and eventually pulpal death¹. Hence more attention should be paid to correcting the occlusion when seating restorations.

Conclusion

Some of the ways in which the dentist can harm the tooth and the preventive measures to be taken are discussed. A little caution on the part of the dentist can help to prevent pulpal damage in most of the situations.

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ABOUT THE JOURNAL

The Trivandrum Dental Journal, the official publication of the Indian Dental Association, Trivandrum Branch, is intended to be a research periodical that aims to inform its readers of ideas, opinions, developments and key issues in dentistry - clinical, practical and scientific - stimulating interest, debate and discussion and an opportunity for life long learning, amongst dentists of all disciplines. All papers published in the TDJ are subject to rigorous peer review by our excellent review board. We have tried to design the journal in such a way that the readers can find the relevant information fast and easily.

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Summaries: this section acts as a bridge between the practice and research sections, providing a summary of the research papers in this issue. Besides the abstract and 'in brief' box, in this page, we plan to include a comment on each paper by a specialist in the field, emphasizing the relevance of the paper, to ensure that the information from the research is easily available to both practitioners and researchers.

The cover page design

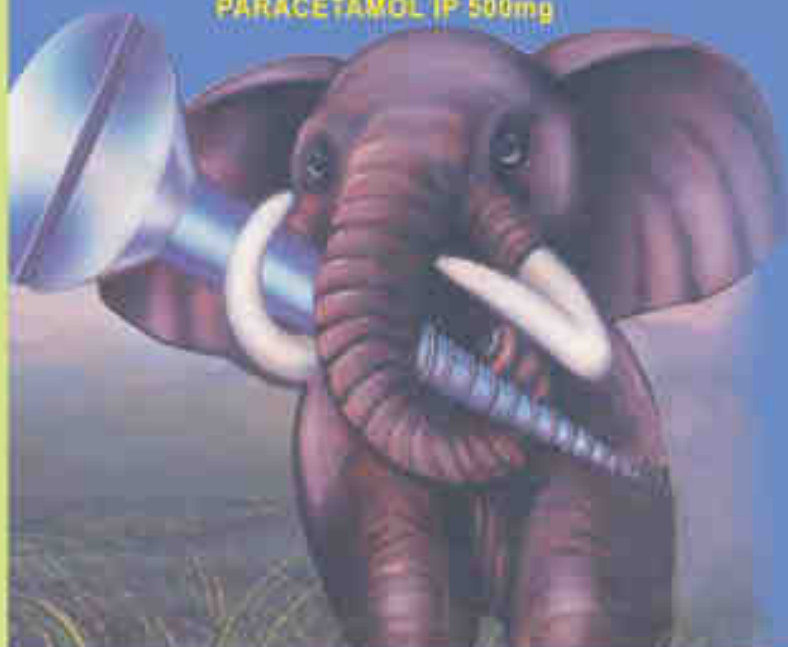
The shanku or the conch was considered as one of the common emblems of majority of Kerala feudal kingdoms of the past, including Travancore. The official Kerala state emblem also symbolises two elephants guarding the imperial conch and its imperial crest. The graphical representation of the conch ('shanku') is adapted to be the design on the cover page of the TRIVANDRUM DENTAL JOURNAL.



The Cover Photograph : Torus Palatinus : A common exostosis that occurs in the midline of the vault of the hard palate. Various factors including genetic and environmental, has been suggested as the etiology of maxillary tori. It is characterised by a bony hard mass that is seen along the midline suture of the hard palate, most of them measuring less than 2cm in diameter. They may slowly increase in size and may show secondary ulceration due to trauma. Tori may not be seen in the routine dental radiographs. Four types of tori has been identified. i) Flat form - broad based slightly convex with smooth surface often extending symmetrically to both sides. ii) Spindle form - seen as a middle ridge along the raphe and may show a median groove. iii) Nodular form - seen as multiple protuberances with individual bases. iv) Lobular form - seen as lobulated mass or multiple protuberances from a single base, either sessile or pedunculated. The photograph shows Maxillary Torus / Torus Palatinus (photo courtesy Dr (Capt) V.Vivek).

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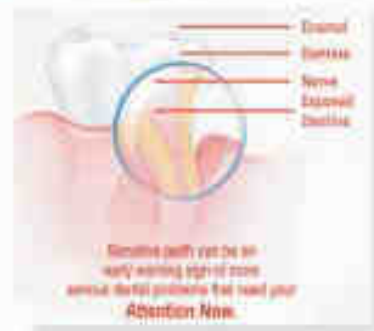
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