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Editorial

The Editor of the "UPDATES IN DENTISTRY" had the audacity to publish my views from dentistry. As I write this column, we are living under the shadow of the corona-virus pandemic. The morbidity and mortality statistics are truly frightening at this point and are supposed to get much worse. Amidst this pandemic, this journal continues its normal publication schedule, thanks to the production team they are doing right now in the face of this global crisis.

With the concern of infection control in health care settings, personal protective equipments (PPE) have been given to many individuals. American Dental Association advised all the dental practices to cease nonemergent in-person care to reduce the infection rate and started to rebuild stockpiles of PPE for health care providers.

Many people today enjoy excellent oral health and are keeping their natural teeth throughout their lives. But for some, caries are still the most prevalent chronic disease of childhood. Too many people mistakenly believe that they need to see a dentist only if they are in pain or something is wrong.

Dentistry promotes continuity of care that is comprehensive, convenient, cost effective and efficient. Their responsibilities include diagnosing of oral diseases and promoting oral health and its prevention. Even the routine procedures such as tooth extractions, preparing and placing fillings, carry potential risks of complications such as infection, temporary or even permanent nerve damage, prolonged bleeding, pain etc. Dentists can spot early warning signs in the mouth that may indicate disease elsewhere in the body. Regular dental visits and care will help maintain and improve optimal health throughout their lifetimes.

With people around the world wondering what the future will hold after this pandemic, I remain confident that our profession will not only survive but thrive. My confidence is even deeper, with a passion for symmetry, perfection and beauty to unlock each patient's epitome of a perfect smile.

Going forward with the most rewarding thing, the patient's happiness and satisfaction and the stability of the results.



Dr. Sandeep Kumar Editor in chief Director Principal Professor & Head Department of Prosthodontics Surendera Dental College & Research Institute Sriganganagar

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Contents

ORIGINAL RESEARCH

1.	BDS GRADUATES OPTING BDS AS A CAREER OPTION OR ANY OTHER FIELD POST BDS - A QUESTIONNAIRE BASED STUDY. <i>Dr. Manisha Solanki, Dr. Shweta Nehe, Dr. Kishan, Dr. Laxmi</i>	1-5
	REVIEW ARTICLES	
2.	IMPORTANCE OF SMILE ANALYSIS IN ORTHODONTICS Dr. Ananya Mukherjee, Dr. Eenal Bhambhri, Dr. Gurpreet Singh, Dr. Ankit Bharadwaj	6-10
3.	AYURVEDA AS AN ALTERNATIVE APPROACH IN PERIODONTOLOGY: A COMPREHENSIVE REVIEW Dr Rohit, Dr Rajni Aggarwal, Dr. Harsha, Dr. Sajan	11-15
4.	EXPANSION OF NARROW MAXILLARY ARCH BY HYRAX: A CASE REPORT Dr. Priyangka Yambem, Dr. Eenal Bhambri, Dr. Gurpreet Singh, Dr. Ankit Bharadwaj	16-19
5.	AN INDIVIDUALISTIC APPROACH TO COMPLETE DENTURE Dr. Arpita Bagga, Dr. Madhurima Sharma, Dr. Rohit Sharma, Dr. Anusheel Sharma, Dr Samra Ashraf	20-27
	CASE REPORT	
6.	BIO-ESTHETIC DIRECT VENEERING – A NEW INNOVATIVE APPROACH TO MINIMALLY INVASIVE DENTISTRY Dr Shikha Kansra, Dr Arshdeep Gill, Dr Neetu Jindal, Dr Renu Aggarwal	28-31
7.	FUSION OF PRIMARY LEFT MANDIBULAR INCISOR AND MANDIBULAR CANINE: A CASE REVIEW Dr. Aditi De, Dr. Sayyad Ruma Farhin Hamid, Prerna Khajuria	32-34
8.	MESIODENS: A COMMON DENTAL PROBLEM IN PEDIATRIC PATIENTS. A CASE REPORT Dr Smita Sutar, Dr Manisha Solanki, Dr Soumalya Kundu, Dr. Suruchi Juneja	35-37
9.	COMPARISON OF HEALING FOLLOWING LABIAL FRENECTOMY USING ELECTROCAUTERY AND DIODE LASER: A CASE REPORT Dr Harsha, Dr Rajni Aggarwal, Dr Sajan, Dr Rohit	38-41
10	D. PROSTHETIC MANAGEMENT OF PARTIAL MANDIBULECTOMY PATIENT FOLLOWING ORAL CANCER SURGERY WITH A SINGLE IMPLANT-SUPPORTED OVERDENTURE- A CASE REPORT Dr. Taniya Bhatia, Dr. Madhurima Sharma, Dr. Rohit Sharma, Dr. Shubham Jain	42-44
11	. REINFORCEMENT OF LOST TOOTH STRUCTURE USING ENDOCROWN AND INCORPORATING HORIZONTAL FIBRE POST- A CASE SERIES Dr. Amandeep Kaur, Dr. Vartika Pupneja, Dr. Neetu Jindal, Dr. Renu Aggarwal	45-50

Original Article

Dr. Manisha Solanki, Dr. Shweta Nehe, Dr. Kishan, Dr. Laxmi ABSTRACT

Career is a very important part of everybody's life and choosing it correctly matters the most.

There are many who have struggled a lot for making their career while some of them are lucky to have a family with a medical background.

Dentists has a significant place in society as a health care worker and many are attracted seeing it and want to pursue it as a career.

Aim: The aim of the study is to evaluate the choice of the students in opting carrier post BDS.

Materials and Methods: It is a cross-sectional study was conducted in one of the dental Research Institute in Rajasthan state. A questionnaire was prepared which consists of 11 questions and distributed to 21 dental Interns. The questionnaire consisted of sections on demographic details, motivational factors, and career choice options. Data was analysed, tabulated and calculated in percentage

Results: The rate of response was 100%. The students chose the field as a good career option. The majority students were female. Conclusion: Students think dentistry as a stable career option. After completing graduation some set up their own clinic and some opt for doing MDS. Students also choose for going in government sector like UPSC and MPSC

Key words: Dentistry, Stable carrier, income, interest.

INTRODUCTION:

Dentistry is a career option that offers many benefits and possibilities for those who are passionate and interested in it. Dentistry is not only a science but also an art that requires creativity, patience and dedication. Dentistry is not only a job but also a service that makes a difference in the lives of others. Dentistry is the branch of medicine that deals with the diagnosis, prevention and treatment of diseases and disorders of the teeth, gums, mouth and jaw.

Dentistry is an important and rewarding profession that helps people improve their oral health and quality of life. Dentists not

only create beautiful smiles, but also prevent and cure various oral problems that can affect the overall health of the body. Dentists also earn a good income and have flexible work hours that allow them to balance their personal and professional lives. Medical faculty as a whole is the best career option and many students and their parents see it as a stable and good career option¹. The dental education system in India is at present one of the largest in the world. The first dental college was developed in 1924 by Dr. R Ahmed.². The total number of dental colleges approved by DCI in India is more than 300, and approximately above 25000 dentist passes out every year³. The ratio of estimated dentist to population according to WHO is 1:7500². The process of selection of career creates a impact in every individuals life.4

During internship phase students have a thorough knowledge about every subject in dentistry. At the intern's stage, it is very significant for the undergraduates to recognize students' motives for choosing dentistry and their views regarding the future of dentistry to preserve a motivated workforce⁵.

Some people choose to opt for other fields like preparing for MPSC/UPSC exams, business, MBA in healthcare, MPH, going abroad as working there as a dentist. Some students follow their passion of art and enter in fields like choreography, artist, sketch artist. There is a new trend as dental photography. So, the study was conducted to assess the choice of profession as dentistry or any other field after graduating in dentistry.

Untitled form Questionnaire for BDS graduates opting for dentistry or any other field post BDS.			
Form description			
Age of the student below 18 years 18-25 years more than 25 years			
Gender of the student Male Female			

Was chosing BDS your	first career option?
----------------------	----------------------

YES
NO
Option 3

Option 4

By myself

Cant specify

Under family pressure

Continous backpain

Occasional backpain

Do you feel MDS is a good career option after BDS?

_	NO
	INU

Never was a forcefull decision

What physical problems do you think you faced or have faced while persuing BDS?

Continous backpain

_		
	Occasional	backpain

Do you think that BDS itself is a stable career option?

YES	
N0	

NOT SURE

If given a choice to change field from dentistry would you like to do so?

 YES

 NO

If given a choice to change field from dentistry would you like to do so? If No then specify.

NOT SURE

VES

NOT SURE

I am happy doing BDS

Do you think a job or a career from BDS will provide you a steady employment?

Did you choose to persue career in dentistry by yourself or under family pressure?

What physical problems do you think you faced or have faced while persuing BDS?

YES

N0

NOT SURE

Do you have a medical background?

YES

N0

Cant specify

Did you find interest in this field even after forcefully opting it ?

YES

NO

Never was a forcefull decision

I am happy doing BDS

MATERIALS AND METHODS

The interns of the dental college were given questionnaire and asked 11 questions about career, and dentistry. Total 21 students were included in the study. In the study 13 females were present (62%) and 8 males were present (48%). The data was collected and tabulated using google forms.

RESULT:

This study was conducted to evaluate choice of the students in opting carrier post BDS and to the know importance of dental faculty as a career option. In the study 21 students were included out of which 13 (61.90%) interns were female and 8 (47.61%) were male. Only 6(28.57%) had medical family background. According to study Dentistry was a career plan for 11(52.38%)

interns from beginning and many wanted to do future in dentistry, 3(14.28%) opted for the field under family pressure, and given choice 6(28.57%) are interested in changing the field and specified that they want to carry on family business and some

1				
Number			Did you choose to pursue career	Do you have a
	Gender of	Was choosing BDS	in dentistry by yourself or under	medical/dental
	the student	your first career option?	family pressure?	background?
1		Never was a forceful		
	Male	decision	Under family pressure	NO
2	Female	NO	Under family pressure	NO
3	Male	YES	By myself	NO
4	Female	NO	By myself	YES
5	Female	NO	By myself	YES
6	Female	NO	By myself	NO
7	Female	YES	By myself	NO
8	Female	YES	By myself	YES
9	Female	YES	By myself	NO
10	Male	YES	By myself	NO
11	Female	YES	By myself	YES
12	Female	YES	By myself	NO
13	Female	NO	Cant specify	NO
14	Male	NO	Cant specify	NO
15	Female	YES	By myself, Under family pressure	NO
16	Male	YES	By myself	NO
17	Female	NO	By myself	NO
18	Male	NO	Under family pressure	NO
19	Female	NO	By myself	NO
20	Male	YES	By myself	YES
21	Male	YES	By myself	YES

Number				Do you think a
1 tumber	Did you find			job or a career
	interest in this			from BDS will
	field even after	Do you feel MDS	What physical problems do you	provide you a
	forcefully	is a good career	think you faced or have faced	steady
	opting it ?	option after BDS?	while persuing BDS?	employment?
1		Never was a		100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100 - 100
	YES	forcefull decision	Continous backpain	YES
2	NO	YES	Occasional backpain	NOT SURE
3	Never was a			
	forcefull			
	decision	YES	Continous backpain	NOT SURE
4	Never was a			
	decision	VES	Occasional backnain	NOT SURF
5	VEC	VEC	Occusional backpain	VEC
6	1ES	IES	Occasional backpain	1ES
0	YES	YES	Occasional backpain	NOT SURE
/	Never was a			
	decision	VES	Occasional backnain	NOT SUPE
8	NO	IES		NOT SURE G
0	NO	YES	Occasional backpain	NOT SURE
9	NO	Never was a	Occasional baskmain	
10	VEC	VEC	Occasional backpain	VES
11	1L5	1E5	Occasional backpain	TES
12	IES Never was a	1E5	Continous backpain	1L5
12	forcefull			
	decision	YES	Occasional backpain	YES
13	NO	VES	Occasional backpain	NO
14	110	125	occasional backpain	YES NOT
	YES	NO	Occasional backpain	SURE
15	YES	VES	Continous backpain	VES
16	Never was a			
1.000	forceful1			
	decision	YES	Continous backpain	NOT SURE
17	Never was a			
	forcefull			
	decision	YES	Continous backpain	NOT SURE
18	YES	YES	Occasional backpain	YES
19	YES	YES	Occasional backpain	YES
20	Never was a			
	forcefull			YES, NOT
	decision	YES	Continous backpain	SURE
21	YES	YES	Occasional backpain	NOT SURE

Number	Do you think	If given a choice to	
	that BDS itself	change field from	If given a choice to change field
	is a stable career	dentistry would	from dentistry would you like to
	option?	you like to do so?	do so? If No then specify.
1	YES	YES	Specify
2	NOT SURE	YES	YES
3	YES	I am happy doing BDS	I am happy doing BDS
4	NOT SURE	I am happy doing BDS	I am happy doing BDS
5	YES	I am happy doing BDS	NO
6	YES	I am happy doing BDS	I am happy doing BDS
7	NO	YES	YES
8	NO	YES	YES
9	YES	YES	NOT SURE
10	YES	YES	YES
11	YES	I am happy doing BDS	I am happy doing BDS
12	YES	I am happy doing BDS	I am happy doing BDS
13	NO, NOT SURE	YES	YES
14	YES	YES	I am happy doing BDS
15	YES	NO	NO
16	YES	I am happy doing BDS	NO
17	NOT SURE	NOT SURE	NOT SURE
18	YES	YES	YES
19	NO	NOT SURE	NOT SURE
20	YES, NOT SURE	NOT SURE, I am happy doing BDS	NOT SURE, I am happy doing BDS
21	YES	I am happy doing BDS	I am happy doing BDS







Journal of Updates in Dentistry, Jan-Jun. 2023; 12(1) : 1-5

3

wanted to go abroad and pursue career in dentistry. Almost half of the participant 10 (47.61%) were willing to opt dentistry as career and 8 (38.09%) agreed on getting a steady employment as dentist. The future career plan for majority of students 18(85.71%) was post graduations (MDS).

TABLE 1: Questionnaire

DISCUSSION:

Selection of career depends upon the interest in the field, dedication and will power makes it possible to achieve ³. Doctor as a profession is considered as a very noble profession and many people are interested in choosing it as a career option. But pursuing it is very difficult as one has to crack exams like NEET and one has to secure a good rank for getting a seat into MBBS or BDS. As many people are interested in becoming doctors but due to competition, they cannot get MBBS so they prefer doing dentistry.

Dentistry itself is a wide branch which includes in all 8 specialty departments. After getting a degree one can put up his or her own setup and can earn a good amount of income

Maximum number of participants were female, as routinely seen in dental schools in India². Choice of dentistry as career for females may be recognised as the trust of female on this field about being balance personal and professional life effetely². Considering that dentistry allows most flexible working schedule as it depends on one's own decision.

Also, females are more skill oriented which reflects in our study as well, as 13 (72.22%) are considering post-graduation after BDS and Maxillofacial surgery was most favourite subject, because it provides opportunity to develop skill in surgery, teach students and also a source of good monetary benefit ^{6.7}. The future plan of maximum number 18(85.71%) was to peruse post-graduation and very few were interested in setting a clinic right after graduation. Although almost 38% interns did not have dentistry as first career choice, now after completing BDS 61.90% interns agreed that practicing dentistry will provide steady source of employment as and it is a stable career option.

CONCLUSION:

The main goal for pursuing a career in dentistry depends on the students' vision about his

bright future in terms of prestige, hard work, dedication, social status, interest in subject, confidence, independence in job, and being able to help others. The future aspects of all the study interns were to learn more and gain knowledge which is beneficial for the society to treat the needy people, so dentistry was chosen as first career option by many interns. The goal of every intern in dentistry is to get trained and become ethical, skilled professional dentist and be capable of practicing dentistry on a level that is steady with the prospect of society and to search for passion and curiosity in further higher studies regarding dentistry.

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Journal of Updates in Dentistry, Jan-Jun. 2023; 12(1) : 1-5

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Journal of Updates in Dentistry, Jan-Jun. 2023; 12(1) : 1-5

Review IMPORTANCE OF SMILE ANALYSIS IN ORTHODONTICS

Dr. Ananya Mukherjee, Dr. Eenal Bhambhri, Dr. Gurpreet Singh, Dr. Ankit Bharadwaj

ABSTRACT

The article emphasizes the significance of smile analysis in orthodontics, recognizing that a pleasant smile enhances appearance and reflects joy. Traditionally, orthodontic treatment focused on skeletal structure and profile, neglecting the frontal view and smile analysis. However, in recent years, smile analysis and design have become crucial in diagnosis and treatment planning. The article discusses smile analysis in four dimensions: frontal, oblique, sagittal, and time-specific. Various measurements and characteristics, such as incisor and gingival display, arch form, and transverse smile dimension, are evaluated using records like photographs, radiographs, and digital videography. Individualized treatment strategies and smile design are vital for achieving aesthetic outcomes, aiming for harmony between teeth and the lower lip. New technologies enable dynamic assessment and communication of functional and aesthetic concepts, enhancing orthodontic treatment.

INTRODUCTION

Webster defines the smile as "a change of facial expression involving a brightening of the eyes, an upward curving of the corners of the mouth with no sound and less muscular distortion of the features than in a laugh that may express amusement, pleasure, tender affection, approval, restrained mirth, irony, derision or any of various other emotions."¹

A pleasant smile is an expression of joy, while other smiles may be exhilarating or embarrassed, gleeful or winsome, haughty or hateful. A smile, when pleasing and attractive to observers, enriches not only the one who smiles, but those who view it.²

In orthodontic treatment, esthetics has traditionally been associated with profile enhancement. Both the Angle classification of malocclusion and the cephalometric analysis have focused attention on the profile, without considering the frontal view. Even though patients come to us mainly to improve their smiles, the orthodontic literature contains more studies on skeletal structure than on soft-tissue structure, and the smile still receives relatively little attention³. It is important for orthodontists to make every effort to develop a harmonious balance that will produce the most attractive smile possible for each person being treated. Smile analysis and smile designs have become key elements of orthodontic diagnosis and treatment planning over the last decade.⁴

Classification of Smile

Many authors have classified smile into different types, Ackerman et al. classified smile into two basic types: A) The social smile/posed smile which is reproducible, voluntary.

The lips part due to moderate muscular contraction of the lip elevator muscles, and the teeth and sometimes, the gingival scaffold are displayed. (Fig.1)



FIG1. SOCIAL SMILE

B) The enjoyment smile/unposed smile/Duchenne smile is an involuntary smile and is elicited by laughter or great pleasure and results from maximal contraction of the elevator and depressor muscles causing full expansion of the lips, gingival show, and maximum anterior tooth display.⁵ (Fig.2)



FIG 2. ENJOYMENT SMILE

Journal of Updates in Dentistry, Jan-Jun. 2023; 12(1) : 6-10

According to Tjan and colleagues, smile can be divided into 3 types⁶: (Fig. 3)

1.	High sn	nile
----	---------	------

- 2. Average smile
- 3. Low smile



FIG 3. A) High smile reveals the total cervico incisal length of the maxillary anterior teeth and a continues band of gingiva. B) Average smile: Reveals 75% to 100% of the maxillary anterior teeth and the interproximal gingiva only. C) Low smile; Displays less than 75% of the anterior teeth.

RECORDS IN TREATMENT OF THE SMILE

Orthodontic records fall into 3 separate but interdependent categories (Fig. 4)

1. Static Records,

2. Dynamic Recordings,

3. Direct Biometric Measurements.

1. In clinical practice, static records include film or digital photographs, radiographs, and study models (mounted or unmounted plaster or electronic models). The universal standard for facial images consists of frontal at rest, frontal smile, and profile at rest images.



Fig 4. Routine patient photos should include several new views, including A, profile and oblique (not pictured) facial smile; B,

oblique smile close-up; and C, frontal smile close-up. (Fig. 5) 1. The dynamic recording: Digital videography enables dynamic recording of smiles and speech in orthodontics. It captures anterior tooth display during speech and smiling at 30 frames per second. Videos taken from frontal and oblique views before and after treatment yield 150 frames for comparison. Using matched frames, changes in smile characteristics are analyzed, the patient's head is positioned naturally, and they rehearse a specific phrase while smiling. The videos are downloaded, compressed, and each clip is around 4 MB in size.⁷



Fig 5. Digital technology enables clinicians to record and evaluate anterior tooth display during speech and smiling. (Fig. 6)

1. Direct measurement can be used as a biometric tool to assess facial features, smile dynamics, and tooth-lip relationships. They aid in treatment planning and research on time-related changes and social smiles. Key frontal measurements include incisor show, crown height, and gingival display. Computerized programs facilitate efficient examination and data analysis⁷



Fig 6 Systematic measurements of resting relationships include 1,

Journal of Updates in Dentistry, Jan-Jun. 2023; 12(1) : 6-10

commissure height; 2, philtrum height; and 3, interlabial gap and incisor show at rest. B, Systematic measurements of dynamic relationships include 1, crown height; 2 gingival display; and 3, smile arc relationships. In low smile relationships, percentage of incisor display on smile is measured. C, Ideal smile arc has maxillary incisal edge curvature parallel to curvature of lower lip upon smile; term consonant is used to describe this parallel relationship.

SMILE ANALYSIS

When treating occlusal discrepancies, the orthodontist must have a repeatable position of tooth and jaw relationships to use as a reference point. In dentistry, the most accepted reference position in occlusion is the mandible placed in its most retruded contact position. In treating the smile, the social smile generally represents a repeatable smile. However, a social smile can mature and might not be consistent over time in some patients, The social smile as the representation from which we will analyze the smile in 4 dimensions: frontal, oblique, sagittal, and time-specific.

Frontal dimension:

Smile index – describes the area framed by the vermilion borders of the lips during the social smile and is determined by dividing the inter-commissure width by the interlabial gap during smile. There are 2 major dimensions of the smile are visualized and quantify frontally

1. Vertical characteristics

2. Transverse characteristics.⁷

Vertical characteristics:

The vertical characteristics of the smile are broadly categorized into 2 main features: those pertaining to incisor display and those pertaining to gingival display. Other relationships are between the incisal edges of the maxillary incisors and the lower lip, and between the gingival margins of the maxillary incisors and the upper lip.⁸

Transverse characteristics:

3 transverse characteristics of the smile in the frontal dimension are arch form, buccal corridor, and the transverse cant of the maxillary occlusal plane, When the arch form is narrow or collapsed, the smile may also appear narrow and therefore present of inadequate transverse smile characteristics.⁸

OBLIQUE DIMENSION

Oblique view allows clinician to see many smile characteristics not visible frontally. Patient has 50% maxillary incisor show on smile, and flatness of maxillary occlusal plane relative to lower lip curvature is apparent. The palatal plane can be canted anteroposteriorly in a number of orientations. In the most desirable orientation, the occlusal plane is consonant with the curvature of the lower lip on smile.

SAGITTAL DIMENSION

The 2 characteristics of the smile that are best visualized in the sagittal dimension are overjet and incisor angulation.⁸

Time specific changes

The growth, maturation, and aging of the perioral soft tissues have a profound effect on the appearance of both the resting and smiling presentations. The effects of maturation and aging on the soft tissues can be summarized as

- (1) Lengthening of the resting philtrum and commissure heights,
- (2) Decrease in turgor (or tissue "fleshiness"),
- (3) Decrease in incisor display at rest,
- (4) Decrease in incisor display during smile,
- (5) Decrease in gingival display during smile.⁸

Incisor to lip relationship (Upper lip to incisor)

PHILTRUM HEIGHT

The philtrum, measured in millimeters, plays a significant role in upper lip and mouth corner relationships. In adolescents, the philtrum height is often shorter than commissure height. Adults with a short philtrum may have a downward-curved upper lip resembling a frown. Treatment options include esthetic lip surgery, V-Y cheiloplasty, and possible combination with procedures like LeFort I osteotomy or rhinoplasty.⁸

COMMISSURE HEIGHT

Commissure height is determined by a line from alar bases through the subspinale, with perpendicular lines to the commissures. In adults, commissure height is usually only 2-3mm greater than philtrum height. Correcting commissure drooping due to aging and jowling can be challenging. A facelift (rhytidectomy) addresses this issue, rejuvenating the face's appearance.⁸

Incisor display - excessive maxillary incisor show (gummy smile) (Fig. 7)

Maxillary incisor display at rest is a critical esthetic factor influenced by aging. In adults, upper incisor show decreases while lower incisor display increases. Gender differences show males with less upper and lower incisor display, while females have more upper and less lower incisor display (approximately 2:1 ratio). Excessive incisor show can result from factors like a short upper lip, increased vertical maxillary excess (VME), excessive crown height of incisors, and de-torqued maxillary incisors.⁸



Fig 7 Excessive gingival display in full smile.

ARCH FORM

When the arch form of the teeth is narrow or collapsed, it can result in a smile that appears narrow and lacks adequate transverse smile characteristics. Orthodontic treatment involving expansion and widening of the arch form can significantly improve the smile by reducing the size of the buccal corridors and enhancing the transverse smile dimension. The transverse smile dimension, including the buccal corridor, is influenced by the lateral projection of the premolars and molars into the buccal corridors. A wider arch form in the premolar area allows for a greater portion of the buccal corridor to be filled, leading to a more aesthetically pleasing smile.

SMILE DESIGNING

The concept of an 'ideal' smile should be recognized as subjective, as there is no universally agreed-upon standard. The primary objective in creating a visually pleasing dental composition is to achieve a harmonious relationship between the upper incisal edges of the front teeth and the curvature of the lower lip. When designing a smile and implementing orthodontic treatment, it is crucial to consider the esthetic plane of occlusion, which may differ from the natural occlusion plane. Two key factors to consider are individualized bracket positioning and modifications in overall treatment mechanics. Esthetic teeth and gingival relationships are determined by various characteristics, including tooth proportionality in terms of height and width, the arrangement of contacts, connectors, and embrasures, as well as gingival esthetics.6

CONCLUSION

In order to provide proper care to patients, it is essential to understand, document, and analyze their smile. This enables the preservation of desirable aspects while addressing and improving any unattractive components. The "art of the smile" lies in the clinician's skill to identify the positive elements of beauty unique to each patient and develop a strategy to enhance features that may not align with the prevailing aesthetic ideals. Advancements in technology further enhance our ability to examine patients more comprehensively and facilitate a more dynamic approach to treatment planning.⁴

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Journal of Updates in Dentistry, Jan-Jun. 2023; 12(1) : 6-10

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Review

AYURVEDA AS AN ALTERNATIVE APPROACH IN PERIODONTOLOGY: A COMPREHENSIVE REVIEW

Dr Rohit, Dr Rajni Aggarwal, Dr. Harsha, Dr. Sajan **ABSTRACT-**

This comprehensive review explores the integration of Ayurveda, an ancient Indian system of medicine, into periodontology, addressing conditions from gingivitis to advanced periodontitis. It emphasizes the need for a holistic approach that addresses both symptoms and underlying factors contributing to periodontal diseases. The resurgence of interest in ancient medical traditions, including Ayurveda, reflects a search for alternative approaches to conventional treatments. this review underscores the potential benefits of integrating Ayurveda into periodontal care, offering a holistic framework that complements modern interventions. While challenges in integration and the need for further research persist, the potential for improved patient outcomes is substantial, positioning Ayurveda as a promising avenue for advancing patient-centered care in periodontology.this review underscores the potential benefits of integrating Ayurveda into periodontal care, offering a holistic framework that complements modern interventions. While challenges in integration and the need for further research persist, the potential for improved patient outcomes is substantial, positioning Ayurveda as a promising avenue for advancing patient-centered care in periodontology.

Keywords-

Ayurveda, Periodontitis, Oil pulling, Herbal

INTRODUCTION-

Periodontal diseases, encompassing conditions that range from gingivitis to advanced periodontitis, pose a significant global health concern. The multifaceted nature of these ailments demands a comprehensive approach that not only targets symptom management but also addresses the underlying factors contributing to their progression. In recent years, there has been a resurgence of interest in ancient medical traditions, seeking alternative avenues to complement conventional treatments. One such tradition, Ayurveda, an ancient Indian system of medicine, offers a holistic perspective on health and disease. Its principles, deeply rooted in natural elements and individual constitution, present a unique framework for understanding and managing periodontal health. This clinical review embarks on an exploration of the Ayurvedic approach in periodontology, synthesizing

contemporary research with the wisdom accrued over millennia. Through a meticulous examination of Ayurvedic concepts, herbal remedies, dietary recommendations, and therapeutic practices, this article aims to elucidate the potential synergies between Ayurvedic principles and modern periodontal care. By harmonizing ancient wisdom with contemporary science, we endeavor to unveil a holistic paradigm that may augment the efficacy of periodontal interventions. Through this comprehensive review, we aspire to provide a valuable resource for clinicians and researchers seeking a nuanced understanding of the Ayurvedic perspective on periodontal health.¹

HISTORICAL PERSPECTIVE-ORIGINS AND **DEVELOPMENT OF AYURVEDA IN INDIA:**

Ayurveda, often referred to as the "science of life," has its roots deeply embedded in ancient Indian civilization. Originating over 5,000 years ago, it evolved from the collective wisdom of ancient sages who sought to understand the intricate balance between the body, mind, and spirit.Relevance of Ayurveda in modern healthcare, including dentistry: In recent decades, Ayurveda has witnessed a resurgence in global interest. This resurgence is, in part, due to the holistic and personalized approach it offers to health and well-being. In the realm of dentistry, Ayurveda's principles and remedies have shown promise in complementing modern periodontal care.²

CONCEPTS OF AYURVEDA RELEVANT TO **PERIODONTOLOGY-**

Dosha theory and its application in understanding oral health:

Ayurveda classifies individuals into three primary constitutions or doshas-Vata, Pitta, and Kapha. This categorization informs not only an individual's physical and mental tendencies but also provides insights into their susceptibility to various health conditions, including periodontal diseases.

Prakriti (constitution) and its impact on periodontal health:

A person's Prakriti, or inherent constitution, influences their overall health and how they respond to external factors. Understanding one's Prakriti aids in tailoring periodontal care approaches to align with their unique needs and susceptibilities.

Journal of Updates in Dentistry, Jan-Jun. 2023; 12(1) : 11-15

Role of Agni (digestive fire) and Ama (toxins) in oral diseases: According to Ayurveda, balanced digestion (Agni) is pivotal for overall health, including oral health. A weakened Agni can lead to the accumulation of toxins (Ama), potentially manifesting as oral diseases. Recognizing and addressing digestive health is integral to effective periodontal care.

Herbal Remedies in Periodontal Care Overview of commonly used Ayurvedic herbs for oral health:

Ayurveda offers a rich repertoire of herbs renowned for their therapeutic properties in maintaining oral health. Among these, neem, turmeric, and triphala stand out for their potent antiinflammatory, antimicrobial, and antioxidant effects.Specific herbs and their actions on periodontal tissues (e.g., neem, turmeric, triphala):^{1,2} Neem, with its potent antibacterial properties, has demonstrated efficacy in reducing microbial load in the oral cavity. Turmeric, celebrated for its anti-inflammatory and wound-healing attributes, holds promise in periodontal tissue repair. Triphala, a blend of three fruits, exhibits a range of benefits including antimicrobial and antioxidant effects.

DIET AND LIFESTYLE MODIFICATIONS:

Importance of dietary choices in maintaining oral health: Ayurveda places significant emphasis on the impact of diet on overall health. Tailoring one's diet to their constitution and specific oral health needs can play a pivotal role in preventing and managing periodontal diseases. Ayurvedic dietary guidelines for periodontal health: Specific dietary recommendations, such as incorporating foods with natural astringent and antimicrobial properties, can be instrumental in supporting periodontal health. Yoga and meditation for stress reduction and its impact on periodontal health: Stress is a recognized factor in the progression of periodontal diseases. Ayurveda advocates practices like yoga and meditation for stress reduction, which can, in turn, positively influence periodontal well-being.

AYURVEDIC THERAPIES IN PERIODONTAL TREATMENT

Oil pulling (Gandusha) and its effects on oral hygiene: Gandusha, the practice of swishing oil in the mouth, has gained attention for its potential in enhancing oral hygiene. This ancient Ayurvedic technique is believed to reduce microbial load and promote gum health. Recent research has been done to substantiate the health advantages of this age-old method. Oil pulling can be recommended for usage in conjunction with tooth brushing and flossing in modern procedures to uphold the required level of oral hygiene. Oil pulling can be an economical alternative and enhance oral health results in developing nations and rural areas where access to oral care is limited and the usage of toothbrushes, toothpaste, and mouthwashes is still not always available.³⁴

Herbal mouthwashes & herbal gels and their role in reducing microbial load: Ayurvedic herbal mouthwashes, infused with potent antimicrobial and anti-inflammatory properties, offer a natural alternative to commercial mouthwashes. They hold promise in reducing microbial load and promoting oral health.^{5,6,7,8,9}

Use of Ayurvedic tooth powders & toothpaste for oral hygiene: Ayurvedic tooth powders, often composed of herbal ingredients, provide a gentle yet effective means of maintaining oral hygiene. These powders, when used correctly, can contribute to a healthy oral environment.¹⁰

CLINICAL STUDIES AND EVIDENCE:

The evaluation of clinical studies and evidence plays a pivotal role in establishing the effectiveness of Ayurvedic interventions in periodontal care. Numerous studies have explored the impact of Ayurvedic practices on various aspects of periodontal health. Findings indicate promising outcomes, ranging from reduced inflammation to improved gingival health. However, it's important to acknowledge certain limitations. Many studies exhibit small sample sizes and varying methodological approaches, which may affect the generalizability of results. Additionally, long-term studies assessing the sustained effects of Ayurvedic interventions are warranted. Moving forward, future research should aim for larger, well-designed trials to further substantiate the benefits of Ayurveda in periodontal care.

Chatterjee A, Debnath K, Rao NKH conducted a clinical trial in which A total of 150 subjects between the ages of 20 and 30 were

gathered. Three groups were randomly selected from the study population. 50 participants in Group A received the experimental mouthwash 0.1% curcumin mouthwash recommendation. Group C received chlorhexidine mouthwash, while Group B participants used a placebo mouthwash. The individuals were instructed to use 10 ml of mouthwash twice day for 1 minute, 30 minutes after brushing their teeth. At days 0, 7, 14, and 28, parameters for plaque, gingival, and sulcus bleeding were measured along with a purely subjective evaluation of taste. Curcumin mouthwash has shown an antiplaque and antigingivitis properties comparable to chlorhexidine mouthwash. Thus, curcumin mouthwash and chlorhexidine gluconate can be effectively used as an adjunct to scaling and root planning.¹

Pradeep, A.R., Suke, D.K., Martande, S.S., Singh, S.P., Nagpal, K. and Naik, S.B. (2016),conducted a study Triphala(TRP), a New Herbal Mouthwash for the Treatment of Gingivitis: A Randomized Controlled Clinical Trial on 90 individual which concluded Inflammatory markers were observed to be reduced with TRP mouthwash between baseline and follow-up intervals. TRP mouthwash is a promising therapeutic agent for the treatment of gingivitis since the improvement in gingivitis was equivalent to that of CHX mouthwash.²

Peedikayil FC, Sreenivasan P, Narayanan A. in 2015 conducted a prospective interventional trial. The study included 60 agematched adolescent males and girls between the ages of 16 and 18 who had plaque-induced gingivitis and incorporated oil pulling in their dental care regimen. A 30-day study period was used. At baseline days 1, 7, 15, and 30, the subjects' gingival and plaque indices were measured. The paired t test was used to assess the data.this study concluded that Oil pulling using coconut oil could be an effective adjuvant procedure in decreasing plaque formation and plaque induced gingivitis.³

Asokan S, Kumar RS, Emmadi P, Raghuraman R, Sivakumar N. Effect of oil pulling on halitosis and microorganisms causing halitosis: a randomized controlled pilot trial was conducted Among the 60 adolescents aged 17-19 years examined, screened, and assessed with the personal questionnaire, 20 adolescents were included for the study. According to this study, oil pulling therapy is just as efficient as chlorhexidine at preventing halitosis and the organisms that cause it. Compared to chlorhexidine, sesame oil provides the following benefits: no discoloration, no aftertaste, and no allergy. Sesame oil is commonly available in the home and is five to six times more cost-effective than chlorhexidine. Except for the longer duration of the therapy when compared to chlorhexidine, oil pulling therapy has no drawbacks.⁴

Naseem M, Khiyani MF, Nauman H, Zafar MS, Shah AH, Khalil HS. In 2017 presented a review article on Oil pulling and importance of traditional medicine in oral health maintenance studying studies published in literature By include the use of oil-based oral rinses in the daily oral hygiene regimen, oil pulling therapy is a type of ayurvedic treatment that promotes optimal oral and systemic health. Recent research has been done to substantiate the health advantages of this age-old method. Oil pulling can be recommended for usage in conjunction with tooth brushing and flossing in modern procedures to uphold the required level of oral hygiene. Oil pulling can be an economical alternative and enhance oral health results in developing nations and rural areas where access to oral care is limited and the usage of toothbrushes, toothpaste, and mouthwashes is still not always available.⁵

Kothiwale SV, Patwardhan V, Gandhi M, Sohoni R, Kumar A conducted A comparative study of antiplaque and antigingivitis effects of herbal mouthrinse containing tea tree oil, clove, and basil with commercially available essential oil mouthrinse. In this study forty patients were selected for a 21-day study period and randomly divided into two groups. This Clinical study have shown that both the newly created herbal mouthrinse and the mouthrinse that is readily accessible are effective antiplaque and antigingivitis medicines. At 21 days, newly developed mouthrinses significantly reduced the number of bacteria CFU. These results back up the regular use of herbal mouthwash as a plaque-removal, gingivitis-prevention, and antimicrobial rinse for greater effectiveness.⁶

Integration with Conventional Periodontal Care:

Journal of Updates in Dentistry, Jan-Jun. 2023; 12(1) : 11-15

The integration of Ayurvedic principles into mainstream periodontal treatment holds significant potential for enhancing patient outcomes. Recognizing synergies between Ayurveda and conventional care can lead to a more comprehensive and personalized approach to periodontal health. For instance, combining Ayurvedic herbal remedies with standard periodontal therapies may yield enhanced anti-inflammatory and antimicrobial effects. However, challenges in integration persist. Coordinating care between Ayurvedic practitioners and dental professionals requires effective communication and mutual respect for each discipline's expertise. Additionally, considerations for evidence-based practices and patient safety should underpin any integrated approach.

SAFETY AND PRECAUTIONS:

Ensuring the safe application of Ayurvedic approaches in periodontal care is paramount. While Ayurveda offers natural solutions, it's crucial to recognize potential interactions with conventional treatments. Certain herbal remedies may interact with medications or existing health conditions. For example, herbs like turmeric can act as blood thinners, potentially influencing bleeding during dental procedures. Consulting qualified practitioners well-versed in both Ayurveda and conventional dentistry is imperative. This collaborative approach ensures that interventions are tailored to the individual's unique constitution and health needs, minimizing potential risks.

CONCLUSION:

In summation, this comprehensive review sheds light on the potential benefits of integrating Ayurveda into periodontal care. From herbal remedies to dietary modifications and therapeutic practices, Ayurveda offers a holistic framework that complements modern periodontal interventions. By embracing this ancient system of medicine, practitioners have an opportunity to provide more personalized and effective care. While challenges in integration and the need for further research persist, the potential for improved patient outcomes is substantial. As Ayurveda continues to find its place in contemporary healthcare, its role in periodontology remains a promising avenue for advancing

patient-centered care.

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Review EXPANSION OF NARROW MAXILLARY ARCH BY HYRAX: A CASE REPORT

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ABSTRACT:

Maxillary transverse discrepancy usually requires expansion of the palate by a combination of orthopaedic and orthodontic tooth movements. A 14 yr. old female patient reported with forwardly placed front teeth. The young patient was diagnosed as Angle's Class I malocclusion with crowding present in both upper and lower arch, deep palatal contour, posterior crossbite and u shaped arch from. The treatment plan was decided as non extraction with rapid maxillary expansion in upper arch for the correction of transverse maxillary discrepancy¹.

INTRODUCTION:

Rapid maxillary expansion (RME) is a popular procedure for correction of transverse discrepancy in the past 2 decades. In 1990s, Adkins et al have demonstrated that 1 mm of trans-palatal width increase in the premolar region produces a 0.7mm increase in maxillary arch perimeter1. Device can be utilized for the treatment of patients in mixed dentition who, due to the maxillary hypoplasia and to the premature exfoliation of some deciduous teeth, manifest a migration of the permanent incisors with a reduction or closure of the space for the permanent teeth substituting those previously exfoliated.² And patients who have lateral discrepancies that result in either unilateral or bilateral posterior es involving several teeth are candidates for RME³⁻⁵

Among the appliances used for RME, the tooth tissue–borne (Haas-type) and the tooth-borne (hyrax-type) expanders are the most recognized in the literature.⁶

In RME, rigid and fixed expanders are used to produce heavy forces to obtain the maximum skeletal response by opening the midpalatal suture, with minimum orthodontic movement.⁷⁻¹⁰As a result, RME is a viable option to correct transverse discrepancies and create additional space in the dental arch, which offers the possibility of non-extraction treatment selection. Previous study has indicated that rapid or slow expansion technique can achieve similar effects on maxillary arch expansion. If the skeletal transverse problem is severe, temporary anchorage device might be applied to join the expander to gain some orthopaedic treatment

effects. In this case report, a conventional expansion appliance (RME) was used in a narrow maxillary arch.¹

DIAGNOSIS:

A 14-year-old female patient reported to the Department of Orthodontics and Dentofacial Orthopaedics with the chief complaint of forwardly placed upper front teeth. There was no relevant medical and dental history.

EXTRA ORAL FINDINGS:

The extra oral findings revealed that she had a convex profile, hyperdivergent growth pattern (Fig. 1). No facial asymmetry was present.

Overjet = 2mm, Overbite = 1mm

On cephalometric analysis, patient was having skeletal class I with Angles class I molar relation. Crowding of 2mm was present in the upper arch and 5mm in the lower arch. Crossbite was also present in relation to 16, 25 & 26.

PRE-TREATMENT EXTRA ORAL PICTURES:



Figure-1 Pre-treatment extra oral pictures



Figure 2- Right lateral photograph



Figure 3- Frontal photograph



Figure 4 – Left lateral photograph



Figure 5 – Upper occlusal



Figure 6-Lower occlusal

TREATMENT OBJECTIVES:

- 1. Expansion of upper arch
- 2. Leveling and alignment of both upper and lower arches
- 3. Finishing and detailing

TREATMENT PLAN:

Crossbite was present so, expansion of upper arch was planned as the midpalatine suture was not closed yet as seen in occlusal view. Expansion was done with HYRAX expander. With the space gained from arch expansion, decrowding was done. In lower arch, due to crowding of 5 mm, extraction of one lower incisor was planned, followed by leveling and alignment.

TREATMENT PROGRESS

After the HYRAX expander was delivered, the patient was instructed to activate it by two turns per day. The expansion was achieved in 10 weeks. 10mm expansion was achieved in the premolar are and 12mm expansion was achieved in the molar region.

After expansion, bonding was done for both upper arch and lower arch, and patient was given TPA for retention.



Figure 7 – Hyrax placed on the maxilla

CURRENT STAGE PICTURES



Figure 8 – Left lateral photograph



Figure 9-Frontal photograph



Figure – Right lateral photograph

DISCUSSION:

During the treatment, the patient's transverse discrepancy was corrected. But for the patient's age, the effect of maxillary expansion might be mainly from the dental effect and minimal skeletal defect. Studies have shown that skeletal changes of RME include the forward and downward movement of the maxilla in conjunction with a backward and downward rotation of the mandible, and the dental effects in the upper molars are extrusion and buccal tipping mainly.

However, the long-term stability of RME is still uncertain.

In 2003, McNamara et al evaluated the long-term changes in dental arch dimensions in patients treated with RME followed by fixed edgewise appliances. The subjects were about 12 years old at the beginning, and their average long-term observation period was about 8 years. They concluded that a net gain of 6 mm was achieved in the maxillary arch perimeters and 4.5 mm in the mandibular arch perimeter as compared to the untreated controls. In 2010, Hakan Gurcan Gurel¹² et al evaluated the long-term changes in maxillary arch widths, overjet and overbite in patients who were treated with RME followed by edgewise appliance. The subjects were about 13 years old at the beginning, and their average long-term observation period was about 7 years. They concluded that the treatment produced absolute increases in

maxillary arch widths, but a significant amount of relapse occurred in the long term, the greatest relapse located in intercanine width. In this case, patient had skeletal class II, HYRAX expander was used to take its effect on the dentition. Stability is required for the HYRAX expander. So, the appliance was maintained in place for next 3 months and followed by TPA for retention.

CONCLUSION:

HYRAX expander is an acceptable treatment modality for use in the increment of arch length in patient with narrow maxillary arches.

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Review AN INDIVIDUALISTIC APPROACH TO COMPLETE DENTURE

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ABSTRACT

There is evidence that dentistry was practised in Egypt as early as 3000 B.C. Dentures are thought to have been used to replace lost teeth from 700 BC. The majority of edentulous patients appear to have profited from complete denture therapy, with good oral and masticatory function. In most situations, the normal approach of full denture fabrication is effective; nevertheless, in cases with impaired intraoral anatomy, a little change in the impression procedure or design of the prosthesis is required to get the best outcomes. This article aims to highlight clinically relevant alterations of full denture prosthesis that should be remembered when such instances arise in regular practise.

INTRODUCTION

The most perplexing aspect of extraction wound healing is that the remaining alveolar ridge continues to undergo catabolic remodelling for the rest of one's life even after the wounds have healed1. The first six months are when the residual ridge shrinks the fastest, although bone resorption activity continues throughout life at a slower pace, leading to a considerable loss of jaw structure. Residual ridge resorption (RRR) is the term used to characterise this peculiar occurrence.

Loss of visible sulcus breadth and depth, Loss of vertical dimension, reduction in lower facial height, anterior rotation of the mandible, an increase in prognathism, changes in the interalveolar ridge relationship, morphological alterations like sharp, spiny, uneven residual ridges, resorption of the mandibular canal and nerve exposure, and placement of the mental foramina close to the crest of residual ridge are all manifestations of this condition¹

Not all complete or partial edentulism cases can be managed using traditional techniques for making dentures. In order to get the best outcomes in cases of compromised circumstances, the impression method or prosthesis design may need to be somewhat modified. This article aims to highlight clinically pertinent full denture prosthesis adjustments that should be considered when such scenarios may arise in regular practise.

FLEXIBLE DENTURE

Hard and soft tissue undercuts, mandibular tori, exostosis, titled teeth, interferences, and de-arranged occlusion that are present in the oral cavity complicate the treatment plan and provide a significant challenge for complete or partial denture construction. In situations when traditional dentures are ineffective due to their hard foundation, flexible dentures have emerged as a potential alternative.

Flexible denture is a metal-free removable partial denture constructed from ISO 1567 thermoplastic resins that could be either polycarbonates (polyesters) acrylic resins or polyamides (nylons) polyaryletherketones, (GPT 9).

Because it has a lower flexural modulus than the typical baseplate material denture, it is almost impossible to break. These materials' flexibility enables the integration of denture flanges in the buccal vestibule's undercut².

Similar to traditional PMMA dentures, retention is achieved by forming a peripheral seal all the way around the denture's border. Flexible dentures, however, should only be used temporarily and provisionally; they should not be worn on a long-term basis.

Indications^{3,4,5 –}

 \cdot Several undercuts where pre-prosthetic surgery is not feasible. In these cases, the retentive part or denture flanges can flex around undercuts without causing much irritation to the tissues.

- · As a provisional in lieu of restorative temporaries or a standard acrylic partial denture
- · Patients allergic to conventional acrylic dentures
- · Patients with repeated partial dentures breakage
- · Cosmetic gum veneers
- · Bruxism appliances

• Implant retained overdentures and complete dentures for patients with protuberant bony structures or large undercuts

· Obturators and speech therapy appliances

 \cdot For existing patients complaining of anterior clasps and want to hide the grey metal colour on the front teeth. Most dentists choose

Journal of Updates in Dentistry, Jan-Jun. 2023; 12(1) : 20-27

it for aesthetic reasons as well

- · Occlusal splints and sleep apnea appliances
- · Obturators with maxillectomy procedures
- \cdot Single complete denture

• In challenging cases including pediatric patients, cancerous mouths or cleft palate cases

· Microstomia

HOLLOW DENTURE

Extreme resorption of the residual ridge becomes a challenge for the practitioner due to narrower, more constricted residual ridges, and resultant large restorative space between maxillary and mandibular ridges.

An excessive volume of denture base material and the manufacture of a heavy full denture to compensate for lost vertical dimension, can compromise the tissues' capacity to support the denture, decreasing the retention rate.

For a maxillary obturator with a significant maxillofacial deformity, it has been hypothesised that lightening the prosthesis' weight might be advantageous.^{67.}

Various techniques have been used to reduce the weight of the maxillary denture in the past. Fattore, Fine and Edmonds used a variation of double flask technique to obtain reduction in the weight of the prosthesis.⁸ It reduced the acrylic prosthesis weight upto 25%.. In the literature, many methods have been reported for creating the prosthetic's hollow gap. A three-dimensional spacer made of dental stone (Ackremann, 1955), asbestos covered in cellophane (Worley and Kniejski, 1983), silicone putty (Holt, 1981), and modelling clay (Dabrea, 1990) were employed for this purpose. Aggerwal et al. developed a "Lost salt technique" for making hollow dentures (Fig.1) in case of severely resorbed ridges⁹



FIGURE 1-FLOATING HOLLOW MAXILLARY DENTURE

CHEEK PLUMPER

When attempting to work on dental aesthetics, a dentist must take the entire face into account. Due to their considerable exposure, external face features including the eyes, nose, cheeks, lips, and facial musculature play a significant role in establishing aesthetics of the face ¹⁰.

Early tooth loss, alveolar resorption, and decreased muscle tonicity, have a significant negative influence on one's appearance on the outside of the face. With the aid of various treatment techniques, it is possible to support and harmonise the bottom third of the face, which has collapsed, with the top section¹¹.

Appliances for cheek lifting or cheek plumping can be used to achieve this¹².

It might be a detachable plumper prosthesis or a single piece prosthesis (Fig. 2). The cheek plumpers can be kept in place with the use of customised attachments or magnets¹³.

Unremovable cheek plumpers have several drawbacks, such as added weight that might affect retention of the maxillary full denture and makes insertion challenging. Additionally, prolonged usage may cause muscular fatigue, and individuals with limited mouth opening cannot utilise it.



FIGURE 2- MAXILLARY DENTURE WITH MAGNET RETAINED CHEEK PLUMPER

SECTIONAL COMPLETE DENTURE

Patients with microstomia who need prosthetic rehabilitation have challenges at every step since their maximum mouth opening is less than a complete denture. Such a condition is frequently a side effect of surgery for conditions such orofacial malignancy, cleft lip, burns, trauma, Plummer-Vinson syndrome, or scleroderma.¹⁴ Long-term usage of substances like cigarettes, arecanut, spices, etc. can result in oral submucous fibrosis, a precancerous disease.

Journal of Updates in Dentistry, Jan-Jun. 2023; 12(1) : 20-27

Any area of the oral cavity may be affected, as well as the throat sometimes. The lamina propria, the submucosa, and frequently the underlying muscle are all affected by the fibrosis, which leads to the deposition of thick fibrous bands and causes the restricted mouth opening that is a defining feature of this condition1(Fig. 3)⁵. Microstomia typically results in a number of disabling consequences, including the inability to chew, communication difficulties, poor oral hygiene or dental care, and psychological issues brought on by facial alteration.



FIGURE 3-SECTIONAL MAXILLARY DENTURE

LIQUID SUPPORTED COMPLETE DENTURE

Resorption of alveolar ridges is a continuous process. It has varying rate in different individuals at different times. Due to the residual ridge resorption, prosthesis rarely remains in close contact to underlying denture supporting tissues, causing tissue irritation, and alteration in the underlying soft tissues.¹⁶

When surgical excision of the flabby tissue and implant cannot be planned, a novel design for denture manufacturing called a liquid supported denture is used. These dentures have plastic and elastic components, functioning as a soft liner while not in use to avoid tissue pain.¹⁷

According to the idea underlying liquid-supported dentures, when no pressures are applied to the dentures, the base takes on the preshaped shape it had before manufacturing. When at rest, foil acts as a soft liner; nevertheless, when in use, the liquid distributes the masticatory loads evenly across the mouth. Thus, the denture base is made with a well-fitting flexible foil to create a space that keeps the thin film of liquid in its place.^{16,17}

Precautions

• The denture base must be at least 3 mm thick,

• A hermetic seal must be maintained where the foil meets the denture surface.

• Periodic examination to check for denture's effectiveness.

• The dental stone cast must be preserved in order for it to be utilised for remake if the sheet becomes damaged.

In addition to the combined advantages of tissue conditioners and soft liners, a greater surface will be used to disperse the load from biting forces and even bruxism. (Chase, 1961).

Liquid-supported dentures provide the following benefits:

• Good base adaptability due to the liquid's hydrodynamics, which improves support, retention, and stability

• The best possible dispersion of masticatory forces across a wider surface area, reducing tissue overload and preventing pain.

Enhanced patient acceptance and comfort

• Optimal adhesion, cohesion, and mechanical interlocking in undercuts.

METAL REINFORCED DENTURE BASE¹⁸

Reinforcement of acrylic denture base materials is done to improve the mechanical strength (Meng et al. 2005). Reinforcing agents may be in the form of metallic wires (Vojdani et al. 2006), cobalt-chromium wires (Uzun et al. 1999). A stress raiser or a point of localised stress must be present for a crack to start and spread, which results in fracture of the denture.

Midline fracture of the denture base arises from cyclic distortion of the denture base during function because of flexural fatigue. There are two approaches to reinforce the denture foundation: either the entire base may be strengthened, or strengthening can be done at the denture's weak spot. The strength of the denture is increased by adding metal mesh during the packing of heat-cured acrylic.

ADVANTAGES

• Metal frames provide thin dentures strength, making them less likely to shatter

- dentures may be relined as needed.
- Metal reinforcing prevents midline fracture.

• The metal frame's weight gives the denture more stability and robustness.

• Due to fewer manufacturing changes than traditional dentures, these dentures are more dimensionally stable.

- Fewer occlusal inconsistencies.
- Long-term financial viability.

• The denture's weight may be uncomfortable at first. Indications

• Patients with ridges that have atrophy.

• A patient whose neuromuscular control is impaired and who could drop their dentures.

DENTURE WITH CHARACTERIZATION 19

It's possible that a complete denture won't look like the prior natural teeth and gums. Multiple patients want a complete denture that seems more natural, such as one with gaps between the incisors, a cracked incisal edge, and discoloured teeth, a proclined profile, etc.

"Characterization" refers to these alterations. There are two main ways to characterize complete dentures.

1. Characterization by selection, arrangement and modification of artificial teeth.

2. Characterization by tinting the denture bases.

Indication for characterization of denture base

• Patients who have an active upper lip.

• Pre-maxillary processes that are readily apparent in the patients.

• Actors, singers, and other performers who could display their gum tissue regions.

• The patient's psychological response to wearing dentures.

GUMFIT DENTURES / MODIFIED FLANGE DENTURES 20

When the optimal criteria of both bone and gingival tissues are not met, complete denture construction becomes difficult. Surgical treatments, such as preprosthetic therapy, must be carried out in order to ensure patient satisfaction following complete denture creation. Residual ridge morphology varies amongst patients, with contours and shapes ranging from extreme resorption to well defined bulky ridges.

In certain situations, regardless of resorption, the maxilla is overdeveloped. This might be due to developmental disturbance or pathology. Which can exacerbated by expansion of labial plate post extraction.

The labially inclined premaxilla and concomitant undercut is one of the abnormalities that impair denture placement and aesthetics. Because of the prominence caused by the labial flange, the aesthetic principle will be compromised if it is created using the standard procedure. Preprosthetic surgery may result in a weaker foundation for denture support. To address these issues, a change in full denture manufacturing is necessary, i.e., it is a noninvasive technique to provide a modified anterior flange in order to increase aesthetics. The upper anterior teeth may be fitted directly on to the ridge without any labial flange. These denture called as Gum-fit denture or Open faced denture (Fig. 4)

ADVANTAGES

- $\cdot\,$ Esthetic improved
- · Proper lip fullness is maintained
- · Patient comfort DISADVANTAGE
- · On the counterpart, retention



FIGURE 4-TRIAL OF GUMFIT DENTURES

DUPLICATE DENTURE²¹

Many patients who are entirely edentulous request that their dentist make them two similar sets of dentures instead of just one. They cannot tolerate the discomfort of not using a denture, for any length of time, which may occur in the event of prosthesis breakage or any technical treatment. Aesthetics of prior dentures can be replicated, restoring the patient's original look.

Indications

• Replacement dentures (with superior fit) identical to those to which patients are used

• To repair old degraded and discoloured denture foundation material, a replica denture will seem fresh.

• For patients who are physically or mentally unable to adjust to new dentures.

DENTURE WITH MECHANICAL RETENTIVE COMPONENTS

There are several mechanical elements that contribute to denture retention. These include retentive springs, magnets, devices which provide negative pressure, and so forth.

Suction chambers, which provide a negative pressure in the maxillary dentures, were formerly utilised to help with retention. These are currently not used due to their propensity to cause hyperplasia of palatal tissues. Intramucosal magnets improve the retention of denture in severely atrophied ridges.

SPLIT DENTURE TECHNIQUE (XEROSTOMIA) / DENTURE WITH SALIVARY RESERVOIR

Xerostomia is a clinical disease marked by dry mouth and difficulties performing regular oral and oropharyngeal functions. The most common complaint is acute pain when wearing dentures.

Causes22

- · Old age
- · Anxiety
- · Depression
- · Salivary gland diseases
- · Sjogren's syndrome
- · Medication related side effects
- \cdot Head and neck radiation
- · Medically compromised conditions like diabetes mellitus.

To provide a moist oral environment, many ways have been tried.

Incorporating salivary reservoirs in dentures (Fig. 5), such as palatal reservoirs and reservoirs in mandibular full dentures, is one approach of employing salivary replacements.²³

Case selection criteria^{24,25}

• There should be enough vertical dimension for the reservoir to be placed.

• To detach and re-join the two portions of the split denture, patients must have manual dexterity.

 For reseating the clear acrylic base portion, minimal undercuts should be present in the mandibular denture base region.
 Advantages^{24,25}

The reservoirs are easily accessible to both the patient and

· It enables for simple reservoir cleaning and adjusments

• The use of transparent acrylic for the base part allows the dentist to decide the ideal size and position for the reservoirs to be placed.

• Allows the patient to see the amounts of saliva replacement within the chamber.

Disadvantages 24,25

professionals.

· Laboratory phases take a long time.

• Precision is required to ensure that parts fit accurately and smoothly.

· Split denture repairs and relines become complicated.



FIGURE 5- MANDIBULAR DENTURE WITH SALIVARY RESERVOIR

DENTURE WITH IDENTIFICATION MARKINGS 26,27

Presence of some markings on denture.

BENEFITS

Used for forensic and medico-legal investigation.

- · Important for patients in long term care facilities.
- · Misplacement of denture can be prevented.
- · Personal identity in memory loss cases.
- · Identification of dead and injured in mass disaster cases.

According to the American Board of Forensic Odontology, most dental identifications are based on restorations, dental cavities, absent teeth, and/or prosthetic devices.Denture labelling has two purposes: it not only helps to retrieve a missing denture, but it also helps to identify edentulous persons, both living and deceased. Kruger Monson proposed five conditions for labelling dentures.

(Fig. 6)

Which are as follows -

- \cdot The prosthesis's strength should not be jeopardised.
- $\cdot \,$ It must be simple and economical to accomplish.
- · The identification system must function properly.
- The branding must be long-lasting and noticeable.
- The marking must be resistant to fire and humidity.

OTHER REQUIREMENTS ARE

 \cdot When integrated into a denture, it becomes biologically inactive.

· Inexpensive.

· Simple and fast to use

- It is possible to recover after an accident.
- Acid resistance and the ability to withstand high temperatures • aesthetically pleasing

 \cdot Visible (readable) and long-lasting without jeopardising the prosthesis's strength.

- · Permanent marking should be used.
- \cdot It is resistant to common cleaning and disinfection chemicals.

The posterior parts of the lingual flange and the palate are indicated for marking.

CLASSIFICATION

Surface markings

- $\cdot \,$ Scribing or Engraving
- · Embossing

INCLUSION

 \cdot Scan able bar code

- · Etching using Laser
- · Electronic Microchips
- $\cdot\,$ Individual's photos
- · Identification tags with trackers
- · Incorporation of sim card



FIGURE 6- MAXILLARY DENTURE WITH BAR CODE CONCLUSION

The right diagnosis allows us to prepare the best possible therapy. The well planned and assessed treatment assists us in producing successful prosthesis, resulting in increased acceptance by patients. The most crucial success criterion is to meet patients' expectations by prioritising their wants. The patient's self-esteem will benefit from this. Each complete denture patient should be examined individually, and the one should make every effort to make the prosthesis specific to that individual.

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Case Report BIO-ESTHETIC DIRECT VENEERING – A NEW INNOVATIVE APPROACH TO MINIMALLY INVASIVE DENTISTRY

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ABSTRACT

Aesthetics is a prerequisite for any dental prosthesis. The restorative dental practice has been revolutionized by recent advancements in the field of adhesive dentistry. The introduction of nano-hybrid composite resins has reinvented composite veneering technique as a conservative alternative to ceramic veneers. This advance can be regarded as a milestone in operative dentistry, as it will contribute tremendously to direct composite application, helping a more significant number of patients to receive esthetic restorations that are more conservative and affordable. This case report presents management of diastema and ellis class 2 fracture with Eelwiess Veneer.

KEYWORDS

Esthetics, conservative, prefabricated composite veneer, chairside

INTRODUCTION

Nowadays, the creation of beautiful, life-like restorations is possible due to the advances in the field of Biomaterials, which allowed the creation of a newer generation of composite resins, improved materials with optimum mechanical and optical properties.¹

Composite resins occupy a paramount position among restorative materials because they offer excellent esthetic potential and acceptable longevity with a significantly lower cost than ceramic restorations. In addition, composite restorations allow for minimally invasive preparations when replacing decayed or missing tissue. This approach is part of a new concept termed bioesthetics that gives priority to nonrestorative or additive procedures.² "laser sintered composite veneer" is one of, these kind of bioesthetic approaches, provided by Edelweiss dentistry.

Edelweiss dentistry presents a newer concept of direct esthetic restoration and full mouth rehabilitation using prefabricated veneers and occlusion VDs.³

The purpose of this case report is to describe the restorative treatment of a young patient with severely attrited anteriors with

prefabricated composite veneers and to discuss the benefits and limitations of this technique compared to the alternative restorative techniques.

CASE REPORT

A 22-year-old male patient reported to the Department of Conservative Dentistry, Surendera Dental College and Research Institute, Sriganganagar, Rajasthan , with the chief complaint of broken and discoloured lower and upper anteriors with midline spacing. Patient's medical history did not reveal any systemic diseases and extraoral clinical examination revealed no gross bilateral facial asymmetry. Vitality test gives normal response. Clinical examination revealed fractured 11 & 21 with midline spacing and class IV dental cavity wrt 31. (fig 1)



Fig 1 Pre-operative photograph

The diagnosis made was Midline diastema wrt 11 and 21 with Ellis class II fracture and class IV dental cavity wrt 31.

The treatment options for restoration of the Upper and lower incisors were discussed and a final decision was made to restore the teeth with prefabricated composite veneers.

Treatment plan made was microabrasion wrt 11 12 21 22 followed

Journal of Updates in Dentistry, Jan-Jun. 2023; 12(1) : 28-31

by Direct composite veneers (Edleweiss) wrt 11 and 21, and direct composite buildup wrt 31

Patients consent was taken and treatment was started.

PROCEDURE:

After supragingival scaling, the shade was selected using Edleweiss custom shade guide. (fig 3) Luting composite color selection is a critical step for successful restoration with Edelweiss Veneer because the laminate is fabricated with a colorless enamel shade, and the final color of the veneer is determined by the color of the luting composite. The Edelweiss Veneer Kit (fig 2) includes a high-viscosity nanohybrid composite for cementation available in several dentin and enamel shades (Edelweiss NH, Edelweiss Dentistry, Wolfurt, Austria). For the patient in this report, Edelweiss NH shade A2 was selected for middle and incisal area and A3.5 for cervical area, with the addition of an opalescent flowable composite in the incisal area (Effect Blue, Edelweiss Dentistry, Wolfurt, Austria) to increase incisal translucency and highlight the halo effect.



Fig 2 - The Edelweiss Veneer Kit

The clinical procedure started with veneer size selection. The prefabricated composite veneers for the patient (Edelweiss Veneers, Edelweiss Dentistry, Wolfurt, Austria) are available in four sizes (XS, S, M, and L) (fig 3) based on average tooth dimensions in the human population. A custom sizing guide is included in the system to select the veneer that best fits the patient



Fig 3 - Custom size guard and shade guide (Edelweiss) Microabrasion was performed wrt 11, 12, 21, 22 with 10% HCL (Labchem) and silica

After microabrasion teeth were isolated using rubber dam. (fig 3)



 $Fig\,3-Photograph\,showing\,rubberdam\,isolation$

A template was made with heavy body putty index. Palatal surface of the incisors was roughened, rinsed and then dried. Etchant was applied, rinsed and dried after 30 seconds, following which two coats of bonding agent was applied, it was air dried and light cured for 15 seconds Then the template was placed on the palatal surface of the tooth and proximal contact build up was done using Edelweiss nanohybrid composite material. (fig 4)



Fig 4 Intraoral photograph showing palatal contact buildup wrt 11 and 21

The veneer preparation was done, i.e., the intaglio of the veneer was conditioned with a proprietary resin primer (Veneer Bond, Edelweiss Dentistry, Wolfurt; Austria) applied with a microbrush and light cured 20 seconds (fig 5).



Fig 5 Photograph showing application of veneer bond and its light curing

Labial surface of the tooth was roughened, etched with 32% phosphoric acid, washed and dried. Bonding agent was applied and light cured for 15 seconds. Dentin shade composite was loaded on the cervical and middle aspect of the inner surface of the veneer and enamel shade was loaded on the incisal aspect of the veneer. Following this Mylar strip was placed around the lateral incisor , and the veneer was positioned on the tooth using a teflon coated spatula. The excess composite was contoured, and tack

Journal of Updates in Dentistry, Jan-Jun. 2023; 12(1) : 28-31

curing was done all around the veneer for 2 seconds. Excess composite was trimmed all over using Benda brush(Edleweiss), and final finishing and polishing was done using soflex polishing paste and diamond impregnated cup(Edelweiss). Final polymerization was done for 40 seconds for each veneer . The occlusion was checked in centric and eccentric movements.



Fig 6 Showing post operative photograph

DISCUSSION

Aesthetics is a prerequisite for any dental prosthesis. The introduction of nano-hybrid composite resins has reinvented composite veneering technique as a conservative alternative to ceramic veneers. Excellent finishing and polishing can be achieved for composite resin materials almost simulating the esthetics of natural tooth.⁴

The prefabricated composite veneering technique has many advantages such as it is minimally invasive, preservation of natural tooth structure, chair-side technique, less appointment, minimal time required to finish the treatment. The challenges include highly technique sensitive and dependent on the skill of the clinician. The correct case selection is the main factor in the clinical success of these prefabricated veneers.⁵

The indications for no or minimal preparation laminate veneer include teeth resistant to bleaching, requiring morphologic modifications, closure of diastemas, minor alignment correction, enamel malformations, fluorosis, chipping, fractures, attrition, erosion, and loss of vertical dimension.^{6,7}

CONCLUSION

The system's bio functionality and versatile area of application combined with its time and cost saving procedure make the edelweiss veneer and occlusion system a sound investment for the future. This advance can be regarded as a milestone in operative dentistry, as it will contribute tremendously to direct composite application, helping a more significant number of patients to receive esthetic restorations that are more conservative and affordable.

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Case Report

FUSION OF PRIMARY MANDIBULAR INCISOR AND MANDIBULAR CANINE: A CASE REPORT

Dr. Aditi De, Dr. Sayyad Ruma Farhin Hamid, Dr. Prerna Khajuria

ABSTRACT

Fused teeth are a developmental anomaly involving the union of two dental germs at the crown, root or pulp. This type of anomaly occurs during intraosseous development, resulting in a morphologically irregular tooth that can affect both the primary and permanent dentition. It usually leads to the formation of a single large tooth. Clinical problems involving esthetics, a lack of space and greater susceptibility to caries are often associated with fused teeth. Fusion can be complete or incomplete, depending upon the stage of development of teeth at the time of union. The prevalence of this anomaly is <1% in primary dentition and is commonly observed in incisor-canine region. The most adequate dental intervention is the result of a multidisciplinary approach involving pediatric dentistry, radiology, orthodontic and restorative dentistry, considering the individual characteristics of each case as well as the expectations of each patient and his/her degree of cooperation with dental treatment.

Keywords: Fusion, Primary dentition, Unilateral.

INTRODUCTION

The development of the human dentition is regulated by tissue interactions and genetic networks similar to those of other ectodermal organs and involves iterative and self-organizing mechanisms crucial for the serial organization of teeth and their shape and renewal.¹ Variations or anomalies are common in the number, size, and shape of the teeth can occur in both primary and permanent dentition. One of such abnormality in shape of the tooth is called fusion which is characterized by the union of two teeth during intraosseous development.² The teeth may be united by the crown, pulp chamber or root, depending on the time at which the fusion of the germs occurred during their development. The prevalence of fused teeth in the primary dentition ranges from 0.1% to 2.5%, depending on the population studied, the diagnostic method (with or without x-ray) and ethnicity of the individual.³ Primary fused teeth are more frequently observed unilaterally in primary than in permanent dentition.5 Fused primary teeth occur four times more often in the anterior region, especially in the Journal of Updates in Dentistry, Jan-Jun. 2023; 12(1) : 32-34

region of incisors and canines, of the mandible compared to the maxilla. This type of anomaly may also affect the permanent dentition, but the occurrence of fused permanent posterior teeth is rare.3

Clinically, fused tooth can present a crown of double size or a bifid crown, or have a normal tooth size. Radiographically, their expression can range from two separate roots to a single root depending on the developmental phase of the fused teeth buds.5 Fusion may occur with a neighbouring tooth or a supernumerary tooth, which makes the diagnosis more difficult.⁶ The treatment plan for this type of anomaly should consider the oral cavity and occlusion as a whole, rather than merely the local developmental abnormality. The repercussions of fused teeth are malocclusion, a lack of space and delayed eruption of the permanent successor.5

The aim of the present study was to report a clinical case of the fusion of mandibular lateral incisors and mandibular canine, describe the treatment prospects of the anomaly and discuss its repercussions during the development of the dentition.

CASE PRESENTATION

A 7-year-old boy reported to the Department of Pediatric and Preventive Dentistry, Surendera Dental College and Research Institute, Sriganganagar with the chief complaint of yellowish discolouration in lower front tooth region since the eruption of the tooth. No history of pain or sensitivity to hot or cold was noted. No relevant past medical and dental history was found. NO soft tissue abmormalites were detected and the dentition was mixed in nature. Enamel hypominaralization was noticed in proximal surfaces wrt 41. On further clinical examination we noticed that the mandibular left primary lateral incisor and the primary canine were fused together, separated with a groove in between both crown structures. (Fig. 1) The number of teeth was found to be one less than the normal complement of teeth suggesting unilateral fusion in the mandibular arch. A deep labio-lingual groove was present along the line of fusion.

Intraoral periapical radiographic examination revealed type III (two fused crowns-double conical root) fusion of 72 with 73. The

union between the two teeth was observed to be complete with radicular portion at cementum; with two separate root canals. The radiograph also revealed congenitally missing 32. (Fig. 2) As this odontogenic anomaly was observed as evident finding during examination and patient was having no complaint, thus no intervention was planned. The treatment plan was composite restoration of 41.



Fig. 1: Mandibular arch showing fused tooth wrt 72 and 73 and hypomineralised 41



Fig 2: IOPA Radiograph wrt 72 and 73 showing fusion of the roots with two separate root canals and missing tooth bud wrt 32

DISCUSSION

Since this fusion tooth anomaly is considered rare, a detailed patient history, clinical evaluation and radiographic examination are essential for a correct diagnosis to provide successful management of fused primary teeth in young children. This anomaly is strongly associated with anomalies in permanent dentition. The presence of a double primary tooth can also cause delayed in resorption of root due to greater root surface area relative to the size of permanent successor crown and may lead to delay or ectopic resorption of permanent successor.7 Microdontia and delayed tooth formation or anodontia is also observed with fused primary teeth.8 In the present case we can see that there is fusion of 72 and 73 which caused the missing of one of its permanent successor which is the mandibular lateral incisor (32) whereas the mandibular canine tooth bud (33) is present normally with no change in its position. Gellin⁹ reported a rate of permanent tooth anomalies of up to 100% following the fusion of primary lateral and canine teeth.

The clinical appearance of a fused tooth is relatively broad. The groove may continue onto the root if they are also conjoined, but maxillary fused teeth usually show two separate roots. Fused teeth may involve two separate or conjoined pulp chambers, with two fused root canals or two independent endodontic systems. In the present case, a groove was noticed between the crowns of 72 and 73 with complete fusion of crowns and roots but having two separate root canals.

Dental fusion is classified into total or partial fusion based on the stage in which it happened. A total fusion occurs at the early stages of development before calcification begins. If the fusion happens during the calcification stage, the fusion will be partial. In the present case the tooth shows complete fusion resulting in normal sized lateral incisor and canine but joined together.²

Gemination is often confused with fused teeth. Gemination, by definition is an anomaly caused by a single tooth germ that attempted to divide during development, resulting in a bifid crown.7 Mader's "two tooth" rule can be used to differentiate between fusion and gemination. Any double tooth that is counted as one and less total number of teeth are present in the dental arch, a fusion is considered.²

In pediatric patients, management depends upon level of fusion, teeth involved and cooperation of patient. It involves retaining the fused teeth in oral cavity till the time of exfoliation, with proper oral hygiene instructions. If fused tooth is carious, the restoration is preferred option and if pulpally involved, endodontic management can be done. To ensure predictable results of endodontic management, advanced imaging techniques like cone beam computed tomography can be used for diagnosis and treatment planning. The extraction of tooth is planned after observing the permanent successor, ensuring the esthetics and functional occlusion. In the present case, the preventive approach was planned till the physiological exfoliation of fused tooth and eruption of its successor i.e left permanent mandibular canine.8

CONCLUSION

Fusion is commonly observed during routine clinical examination. It may be associated with various abnormalities to its permanent successor. Comprehensive clinical and radiographic evaluations are important to detect the dental developmental anomaly earlier. The most adequate dental intervention is from a multidisciplinary approach involving a pediatric dentist, orthodontist, and prosthodontist considering the child's condition, expectation, and degree of cooperation with dental treatment. A follow-up visit is very fundamental for the fused tooth cases along with preventive procedures and close monitoring despite the absence of signs and symptoms.

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Case Report MESIODENS: A COMMON DENTAL PROBLEM IN PEDIATRIC PATIENTS. A CASE REPORT

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ABSTRACT-

incisors.

Mesiodens is the most significant dental anomalies at the primary and early mixed dentition stages and the most common type of supernumerary tooth encountered in the general dental practice. The clinical presentation may be varying depending on the position, number and relation to the adjacent tooth. The reported prevalence of mesiodens in general population ranges between 0.15% to 1.9% and more frequently found in the permanent dentition but rarely found in primary dentition. Early detection, diagnosis and treatment of mesiodens is important to prevent further complications in permanent dentition. A case report of mesiodens of 12 years old child in upper anterior region in mixed dentition and their management have been discussed.

KEYWORDS-

Malocclusion, Mesiodens, Mixed dentition, Supernumerary tooth

INTRODUCTION

Anomalies in tooth size, form, quantity, and eruption are common in pediatric dentistry. Mesiodens is the most frequently found supernumerary tooth. Between the two central incisors in the middle of the premaxilla, this term is used to describe an unerupted supernumerary tooth. In Caucasian population the incidence of mesiodens is 0.3 to 0.8% for deciduous teeth and 0.15 to 3% for permanent teeth. It is most frequently found in males than females in the proportion of 2:1.1, 3. Mesiodens may be single, multiple, unilateral or bilateral. Mesiodens may manifest clinically in certain syndromes such craniofacial abnormalities, Gardner's syndrome, and cleidocranial dysostosis8 .The etiology of supernumerary teeth is considered to be multi-factorial comprising of environmental and genetic components. Seddon et al. reported delayed eruption in 26-52% of the cases and displacement or rotation of adjacent teeth in 28% to 63% of the cases. Management of mesiodens depends on its type and position. Munns et al. Stated that, the earlier removal of mesiodens results in better prognosis.9 Some authors recommend that, the early mixed dentition is preferable time to extract mesiodens to facilitate spontaneous eruption and alignment of the

CASE REPORT:

A 12-year-old male patient with supernumerary tooth with upper anterior region was reported to the Department of Oral Surgery Surendra Dental College & Research Institute, Sri Ganganagar. The child was healthy and previous medical history was nothing contributory. During the clinical examination, presence of mesiodens embedded between two upper central incisors was revealed and two were visible in the palatal side. (Fig. 1)



Fig. 1 : Pre-operative image showing palatally placed supernumerary tooth



Pre-Op: Occlusal radiograph

There was evidence of malocclusion was seen in upper anterior region of maxilla. The child had no complains of pain and discomfort but was aesthetically concerned. Occlusal radiograph reveled presence of supernumerary teeth (mesiodens) without any other impacted teeth (Fig. 2). Based on clinical and radiological features, the condition was diagnosed with embeded supernumerary teeth which were labially positioned. After obtaining the informed consent, the patient was prepared for Surgery under local anesthesia with bilateral infraorbital block and nasopalatine block was given. The surgery was performed in the department under aseptic conditions. A buccal mucoperiosteal flap was raised using periosteal elevator exposing the labially placed supernumerary teeth in maxillary right central incisor region. (Fig. 3) The bone was removed using surgical bur, and mesiodens tooth were identified. Careful removal of the tooth was done by sectioning of tooth using surgical bur. (Fig. 4) (Fig. 5) The region was carefully irrigated using normal saline, and the flap was closed and sutured. Post extraction instructions were advised and recalled after seven days. Suture removal was done and after 7days kept on regular follows up.



(Fig. 3)



(Fig. 4) Extraction done



(Fig. 5) Removed denticles

Journal of Updates in Dentistry, Jan-Jun. 2023; 12(1) : 35-37

DISCUSSION:

The term mesiodens was coined by BOLK (1917) to denote an accessory or supernumerary tooth situated in between the maxillary central incisor^{1,2}. In this case, thorough examination of teeth was carried out and radiograph was taken before making final treatment planning. Crowding and lack of space was noted due to presence of mesiodens thus extraction was the treatment of choice. Lo Giudice et al. encountered supplemental tooth in maxillary anterior region that caused malocclusion was managed by extraction similar to this case.⁴ When the mesiodens erupts normally, it shifts towards the space that should be occupied by the permanent tooth and can determine the dislocation of the adjacent elements that will be subject to diastema and/or malpositioned. However, since the mesiodens is typically totally impacted (88.7%), it may delay or even prevent the eruption of the central incisors. Although the timing of removal of mesiodens is controversial, but evidences available it would seems to be wise to treat by removal of the supernumerary where sufficient space is available.5 Ferrazzano et al. recommend multidisciplinary approach for correction of malocclusion in their management of supernumerary teeth.6 In this case, malpositioned central incisor was in erupting state and timely intervention caused improvement of position of the tooth. Mesiodens causes displacement or rotation of a central incisor in 28% to 63% of cases and among those labially displace incisors in 82% of cases.7 Untreated mesiodens can cause root resorption of adjacent tooth, crowding, ectopic eruption of permanent tooth and even formation of cystic lesion. The mesiodens managed in this case was conical in shape, which is considered to be the most common one. The other types of supernumerary teeth can be supplemental, tuberculated or mixed.8 Removal of mesiodens in early mixed dentition may result in better alignment of the teeth while delayed treatment greater the chance of malaligned permanent incisors. However, early diagnosis and well established treatment planning is mandatory for management of supernumerary tooth.¹³ To permit any functional & esthetic problems.

CONCLUSIONS:

Mesiodens as the most prevalent form of supernumerary teeth in permanent dentition is not a rare condition. The treatment of supernumerary teeth usually depends on their type, position and possible complications detected through clinical and radiographic examination. Extraction is advisable when there is interference with permanent dentition to avoid any disorders or complications. Multidisciplinary treatment approach is recommended in order to obtain optimum dental occlusion.

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Case Report COMPARISON OF HEALING FOLLOWING LABIAL FRENECTOMY USING ELECTROCAUTERY AND DIODE LASER: A CASE REPORT

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ABSTRACT

The frenum, a fold of mucous membrane, connects the lip and cheek to the gingiva, periosteum, and alveolar mucosa of the mouth. When the frena are too close to the gingival border, either as a result of difficulty with plaque control or as a result of a muscular pull, they may endanger the health of the gingiva. Additionally, in cases of midline diastema, the maxillary frenum may cause aesthetic issues or damage the orthodontic outcome, leading to a recurrence after the treatment 2. The current case report brief about introduction to the frenum, with an emphasis on a number of clinical examples of frenectomy that were approached using different procedures. Conventional scalpel approaches have their own setbacks when performing frenectomy. We have cutting-edge methods like electrocautery and lasers, which are increasingly used in standard periodontal practice, to get around them. However, the use of electrocautery in frenectomy is not sufficiently supported by the available research. Laser-assisted frenectomy is a much more comfortable for the patient because it means that no scalpel or stitches are required ⁶ .Hence, this study's objective is to compare the effectiveness of laser and electrocautery techniques for performing frenectomy procedures.

Key Words: Frenectomy, Electrocautery, Diode Laser , Diastema.

INTRODUCTION

Aesthetic considerations have increased the necessity of getting dental treatment with the goal of achieving a flawless smile. The word frenum comes from the Latin word "frnum", which meaning bridle. Frenum is a fold of mucous membrane that connects the lips and cheeks to the alveolar mucosa and/or gingiva and the underlying periosteum. If sufficient gingiva is present coronal to the frenum, surgical removal is usually unnecessary. When the frenum is linked too closely to the gingival margin, it can induce gingival recession, either because of a difficulty with adequate toothbrush placement or through the opening of the gingival crevice due to a muscular pull². In fact, the insertion location of the

frenum has been linked to a decrease in adhering gingiva, which affects the mucogingival junction 1.

CLASSIFICATION:

Placek et al. (1974) classified the frenum based on its anatomical situ of insertion:

1. Mucosal: Fibers that are attached upto mucogingival junction

2. Gingival: Fibers inserted within attached gingiva

3. Papillary: Fibers extended into interdental papilla

4. Papilla penetrating: When the fibers cross the alveolar process and extend up to the palatine papilla.

Frenectomy can be performed using the standard scalpel approach, electrosurgery, or lasers. Archer and Kruger's "classical frenectomy" totally excises the frenum, interdental tissue, and palatine papilla, exposing the underlying alveolar bone and causing scarring. Since the use of lasers in dentistry has acquired widespread popularity in recent years, frenectomy has been performed using lasers such as CO2, Er:YAG, Nd:YAG, Er, diode in conjunction with Er:YAG. Diode lasers are semiconductors that use solid state components as active medium and have wavelengths ranging from 810nm to 980nm. Diode laser wavelengths are suitable for soft-tissue procedures because they approximate the absorption coefficient of pigmented tissue comprising hemoglobin, melanin, and collagen chromophores¹.

CASE 1: FRENECTOMY BY ELECTROCAUTERY

A 29-year-old male patient undergoing orthodontic treatment for maxillary anterior tooth spacing was referred to the periodontics and oral implantology department for an assessment of the maxillary labial frenum ³. A high frenum attachment extending to the palate inter-incisal region was discovered during the clinical examination ¹. The labial frenum was also thick and broad. The patient was advised to have a frenectomy ³. The surgical site was infused locally with 2% lignocaine and 1:80,000 adrenaline. The procedure was carried out using the BONART electrosurgery

equipment. The unit was set to cutting mode (CUT) with an intensity of 6 RF/2MHz. The frenum was excised to the desired depth using a thin wire electrode (T4). To avoid heat buildup and tissue death, the electrode tip was employed intermittently in a 'shaving' action and remained moving while being accompanied by irrigation with normal saline to allow proper tissue cooling. Following the electrosection, the machine was set to coagulation mode (COAG 1), and the heavy ball electrode (T9) was utilized to stop any minor bleeding and ensure excellent hemostasis ⁴. No sutures were used, and healing was permitted through secondary intention 4. A periodontal pack was applied to the affected area. One week after surgery, the pack and stitches were removed ². The next assessment was scheduled on day⁷.



The operative view





Immediate post-Op view



7-day Post- operative view

dayday Post-operative viewday Post-operative view

CASE2: FRENECTOMY USING DIODE LASER

A 25-year-old male patient presented to the department of periodontics and oral implantology with the complaint of increased space between maxillary central incisors. On clinical examination, it was discovered that a thick frenum pull was piercing the interdental papilla and applying constant pressure, causing the space to gradually increase ². No relevent medical history recorded. A high frenum attachment extending to the palate inter-incisal region was discovered during the clinical examination. Following a thorough evaluation and a thorough history, the treatment of choice was laser frenectomy without injected anaesthesia utilizing particular laser parameters. After explanation of the intra and post operative aspects to the patient, informed consent was obtained to perform frenectomy 1 .For laser-assisted labial frenectomy; the upper lip was pulled upward by the assistant hands, then frenum was tightened. 2% lignocaine with 1:80,000 adrenaline was used to anesthetize the surgical area. A 940 nm diode laser at a power setting of 1.5 W was employed. A 400 µm initiated tip was used in contact mode, moving it in a 'paintbrush' stroke thereby excising the frenum from its base to the apex 8 .The incision was started with the frenum from the attached gingivae and interdental papilla on the labial surface between the central incisors extending upward from inner side of upper lip to the depth of vestibule ending in a rhomboidal raw area, separating the fibers from the periosteum 7 At the end of the procedure, the edges and raw region were irradiated (with a defocused beam) to coagulate tissue and produce a denatured layer as a biological dressing. The surgical site was cleaned with a typical saline wet cotton roll after the laser exposure 7 .Throughout the treatment, the patient and all staff wore wavelength-specific eyewear, and high-speed evacuation was used to eliminate the faint burnt odor and remove the laser plume¹ .The sharp edges were obtained, sutured, and a periodontal pack was used. One week after surgery, the pack and stitches were removed².

Journal of Updates in Dentistry, Jan-Jun. 2023; 12(1) : 38-41

DISCUSSION:

Frenectomy with a surgical scalpel frequently produces in postoperative pain and discomfort. Thus, newer modes of treatment, such as electrosurgery and lasers, appear to be viable alternatives due to the following benefits: a clear operative field due to their ability to achieve excellent hemostasis, sterilization of the wound site, suturing and periodontal dressing not being required in the majority of cases, reduced treatment time and unfavorable post-operative sequelae while achieving significant patient acceptance⁸. There are only a few studies in the literature that compare healing after frenectomy performed with a knife, electrosurgery, and diode laser. Though lasers have marked the beginning of their use in soft tissue management, electrosurgery units are "far less expensive than the least expensive diode lasers" and thus it can be questioned whether "the advantages of the diode laser are significant enough to compensate for the additional cost⁵ . A frenectomy is frequently recommended for a hypertrophic labial frenum, when the frenum causes diastema, or when the frenum interferes with dental hygiene1. There have been very few studies that compare the postoperative effects of laser and traditional procedures, which can justify the use of lasers for intraoral soft tissue surgery ⁴ .When David et al⁶ compared mucosal incisions produced using a scalpel, a CO2 laser, and electrocautery, he concluded that the speed of incisions and excisions, measured in seconds, was also faster for the electrosurgery unit than the CO2 laser. The electrocautery group also had less collateral tissue damage than the laser group. Other advantages of it over lasers, are that they require no safety glasses and can remove large amounts of tissue quickly 5. As a result, we may justify the use of electrocautery over the innovative laser approach in routine practice to a certain extent ⁵. A frenectomy is frequently recommended for a hypertrophy labial frenum, when the frenum causes diastema, or when the frenum interferes with dental hygiene¹. Laser treatment has been embraced by physicians and tolerated by patients because of its capacity to alleviate pain and trauma while reducing intervention time during a procedure¹. The current case studies highlighted the benefits of

diode laser surgery by avoiding conventional procedures. The laser distributes energy to the cells, causing warmth, welding, coagulation, protein denaturization, drying, vaporization, and carbonization. Because the wavelength of a diode laser does not interact with tooth structure, it is only utilized for soft tissue procedures. There is no risk of etching or harming the enamel¹. Although the patients treated with electrocautery had similar healing results to the laser in our investigation, electrosurgery has several drawbacks, such as the inability to be employed in patients with pacemakers and the potential for more tissue damage. Based on the findings, it is possible to conclude that the diode laser is a safe and effective therapeutic option for performing frenectomy in patients of all ages⁸.

CONCLUSION

The rapid developments in laser technology and better understanding of bio-interactions of different laser systems have expanded the use of laser in dentistry. They provide an excellent alternative to conventional scalpel surgery because of patient comfort, bloodless field, and reduced pain and healing time. Owing to the small size, low cost, fiber optic delivery, and ease of use for minor surgery of oral soft tissue, diode laser has become an excellent choice for frenectomy.

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Case Report

PROSTHETIC MANAGEMENT OF PARTIAL MANDIBULECTOMY PATIENT FOLLOWING ORAL CANCER SURGERY WITH A SINGLE IMPLANT-SUPPORTED OVERDENTURE- A CASE REPORT

Dr. Taniya Bhatia, Dr. Madhurima Sharma, Dr. Rohit Sharma, Dr. Shubham Jain

ABSTRACT:

Oral cancer and its subsequent treatments involves surgical removal of tumor, radiation and chemotherapy, all of which can lead to various oral complications and can have a profound impact on an individual's ability to perform basic functions such as chewing and speaking. In this article, we present a case of a 58year-old male patient who underwent partial mandibulectomy as a result of oral cancer treatment, leading to restricted mouth opening and difficulties in chewing food. To restore his oral function, a combination of an implant-supported overdenture in the mandible and a removable partial denture (RPD) in the maxilla was planned. This case study highlights the successful rehabilitation of a patient with limited mouth opening, emphasizing the importance of treatment plan and multidisciplinary approaches in such case.

KEYWORDS-

Oral cancer, Reduced mouth opening, prosthetic rehabilitation, implant supported overdenture.

INTRODUCTION:

Oral cancer is a devastating disease worldwide. The treatment of oral cancer consists of different treatment modalities, typically being surgery, radiotherapy, chemotherapy or a combination of these modalities.¹ Regaining oral function and aesthetics that were lost or changed as a result of the surgical treatment is a goal that is as vital to curing cancer.

The degree of impairment of mandible depends on the extent and type of surgery, thus compromising the prognosis of the prosthetic rehabilitation to a greater extent.²

Following bone restoration as well, prosthetic rehabilitation for post-oncology patients does not differ significantly from that for patients who experienced severe upper- or lower-jaw atrophy. It goes without saying that in those patients, the symmetry and balance of the mandibular function are disturbed, resulting in altered mandibular movements and medial deviation of the remnant fragment towards the side that had its function removed.³ Restoration of facial form, function, and aesthetics in a patient who has undergone hemi mandibulectomy is a valuable service rendered by a prosthodontist.^{4,5}

Dental implant-supported prostheses have been a viable treatment option for rehabilitating oral cancer patients, providing improved function and esthetics. However, complications such as implant tilting due to post-surgery changes may arise, requiring careful management to achieve successful outcomes.

This case report discusses the successful prosthetic correction of a post cancer patient using implant supported overdenture in mandible and removable partial prosthesis in maxilla.

CASE REPORT:

The patient, a 58-year-old male (Fig 1), presented to the Prosthodontics Department with a history of oral cancer that had necessitated a partial mandibulectomy on the right side three years prior.

The patient has undergone two surgeries with the interval of ten months due to recurrence of oral lesions. The surgical intervention aimed to remove the cancerous lesion completely, leading to unfavourable anatomy because of flap positioning and presence of scar tissue. Such altered unfavourable conditions has impaired the ability to speak, masticate and swallow.¹ The intraoral examination revealed the presence of dense fibrotic tissue and reduced vestibular depth on the right side. The interincisal opening was limited to 16mm (Fig 2), severely restricting mandibular movements.

TREATMENT PLAN:

The treatment plan was formulated considering the patient's limited mouth opening and the need for functional and esthetic rehabilitation. In mandible, implant supported overdenture and in maxilla, Removable Partial Denture(RPD) was planned (Fig 4).

MANDIBULAR REHABILITATION:

Two stage dental implant placement was planned in the mandibular arch to support an overdenture. Under local infiltration and proper isolation, two implants were placed on either side of mandible. Due to dense fibrous tissue and limited bone availability on the right side, it was challenging to achieve the ideal implant angulation. Subsequently, the surgical sites were allowed to heal over a period of 4 months to achieve osseointegration.

MAXILLARY REHABILITATION:

Given the partial edentulism in the maxillary arch, a removable partial denture was planned. The design aimed to retore the missing teeth while preserving the remaining dentition.

PROSTHETIC PROCEDURE:

1. Overdenture Fabrication: After the osseointegration period, the patient was referred for the fabrication of an implant supported overdenture. During second stage surgery, overdenture was designed to engage the single implant present on left canine region, providing improved retention and stability. On the other hand, dense fibrotic tissue on right side, it was not possible to engage second implant for overdenture procedure. The use of stud attachment (Fig 3) was considered to facilitate ease of insertion and removal by the patient.

2. Maxillary RPD Fabrication: impression of the maxillary arch was taken using irreversible hydrocolloid impression material. The RPD framework was designed to be lightweight and esthetically pleasing. Careful considerations was given to the selection of suitable clasps to ensure optimal retention while minimizing strain on remaining natural teeth and bone tissues.

RESULT: The patient was followed up regularly for one year after the prosthesis delivery. Throughout the follow-up period, the patient demonstrated satisfactory oral function and improved quality of life. Despite the initial concern regarding the single implant's support, it remained stable and exhibited good retention and occlusal support. The implant supported overdenture provided enhanced stability and retention, enabling better chewing and speech. Additionally, the maxillary RPD restored the missing teeth, restoring the patient's smile and confidence. **DISCUSSION:**

Prosthetic correction of post-cancer patients with limited mouth opening can be challenging but highly rewarding. The successful management of this case demonstrates the importance of a comprehensive treatment plan and close collaboration between oral surgeons and prosthodontists. Although single implant supported overdenture is not ideal, it can be a viable solution when dealing with post-surgery complications and limited bone availability. The long-term success of the implant-supported overdenture highlights the adaptability and resilience of dental implants in challenging anatomical conditions.

CONCLUSION:

Prosthetic rehabilitation using implant-supported overdenture and a maxillary RPD proved to be an effective treatment for a post-cancer patient with limited mouth opening following partial mandibulectomy (Fig 5). The treatment significantly improved the patient's oral function, esthetics and quality of life. Close collaboration between the surgical and prosthodontic teams was vital for the success of this treatment approach. Long term followup is necessary to assess the stability and success of the prosthetic intervention. Further studies and longer follow-up periods are warranted to validate the long-term stability and success of this treatment approach.





Fig. 1





Fig. 3

Journal of Updates in Dentistry, Jan-Jun. 2023; 12(1) : 42-44



Fig. 4





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Case Report

REINFORCEMENT OF LOST TOOTH STRUCTURE USING ENDOCROWN AND INCORPORATING HORIZONTAL FIBRE POST- A CASE SERIES

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ABSTRACT-

Often the very teeth that need root canal therapy are also those that have lost a substantial amount of tooth structure. These teeth almost never have intact crowns and at other times could also have old leaky restorations that need removal and hence a further weakened tooth is encountered. The restoration of a highly carious tooth is always questionable. With the advent of Implants, it is always a tough choice to make. But still, there are many limitations when it comes to implant surgeries. So it should always be a dentist's concern to "preserve what's remaining". So treatment options like post and core, hemisection, bicuspidization, endocrown placement, pre-endodontic buildup, onlay preparation can be done to preserve such teeth. These procedures demonstrate that retaining a tooth with a poor prognosis is possible when the treatment follows a structured and interdisciplinary approach. Basic requirements leading to the decision to save rather than extract the tooth were the good oral hygiene and compliance of the patient as well as the restorability of the tooth.

Keywords- Horizontal fibre post, Endocrown, grossly decayed tooth, interdisciplinary approach

INTRODUCTION

Restoration of endodontically treated teeth has always been a challenging topic for dentists, as complications may ultimately result in tooth loss if the correct restorative decision is not made. Endodontically treated teeth sustain extensive tooth structure loss, weakening due to factors such as loss of structural integrity, dentine ageing, reduced proprioception and, to a small extent, dentine alteration due to endodontic medicaments.¹

With recent developments of adhesive techniques and ceramic materials, the advantage of adhesive restorations is that a macroretentive design is no longer a prerequisite if there are sufficient tooth surfaces for bonding. With the adhesive technique, creating a ferrule is a drawback because of loss of the natural tooth structure and enamel. Minimally invasive preparations to preserve maximum amount of tooth structure are considered the gold standard for restoring teeth. Endo-crowns and horizontal fiber post strictly follow this rationale owing to a decay-orientated design concept.²

Endocrowns were described by Bindl and Mormann in 1999 as adhesive endodontic crowns for the restoration of root-treated posterior teeth with complete loss of coronal hard tissue. This type of preparation consists of a circumferential 1.0–1.2-mm butt margin and a central retention cavity inside the pulp chamber, which is more conservative than traditional post and core system and uses adhesive resin with mono-block technique.^{3,4}

The prognosis of endodontically treated teeth (ETT) is influenced by different parameters, including the extent of dental tissue loss, design, and the size of the access cavity, the height of ferrule preparation, and type and material of post and core.^{5,6,7} The amount of remaining tooth structure is critical for the ETT to resist fracture.8 Endodontically treated posterior teeth can be restored with different materials and techniques, including post and core, partial or full crowns, direct composite, amalgam, or ceramic restoration. Classes I and II cavities can be restored using lowand-high-viscosity composites as bulk-fill incremental restorations.5 Severely destructed ETT can be treated with glass fiber posts that have favorable physical properties.⁶ When an MOD cavity is present, using a horizontal glass fiber post (HGFP) combined with a direct composite restoration may influence fracture resistance3 and reduce the occurrence of non-restorable fractures.7

The purpose of this clinical case series would provide an insight into the restoration of posterior teeth with a rather conservative and esthetic endocrown, highlighting its indication and uses along the way and the restoration of an MOD cavity using a horizontal glass fiber post (HGFP).

Case Report 1-

A 25 year old female patient reported to the department of Conservative Dentistry and Endodontics, Surendera Dental College & Research Institute, Sriganganagar with a chief complaint of pain in the right lower back tooth region since past 4 days. Patient gave a history of continuous dull pain which aggravated on chewing food, relieved on taking analgesics.

Patient had no history of swelling or pus discharge. Extraoral examination revealed no gross facial asymmetry and no bilateral lymphadenopathy. Intraoral examination revealed deep class I cavity wrt 46 with buccal extension (Fig 1a). The tooth was tender on percussion.



Fig 1 (a) preoperative photograph,



(b) IOPA wrt 46

Radiographic examination wrt 46 revealed radiolucency involving the pulpal space, with PDL widening (fig:1 b). The final diagnosis established was Symptomatic irreversible pulpitis with apical periodontitis wrt 46. Treatment planned was root canal therapy wrt 46 followed by coronal prosthesis. After obtaining the patient's consent for treatment, the tooth was treated with nonsurgical root canal treatment under the dental dam (fig:2).



Fig:(2) IOPA wrt 46 after obturation

Due to the excessive coronal tooth loss wrt 46, it was decided to restore the tooth with endocrown restoration conservatively following the design of endocrown with modifications made to fit this particular case: 2.0 mm occlusal reduction for sufficient restorative thickness.

A butt joint margin of 1 mm was prepared, but no ferrule was created.

Tooth 46 was then prepared with 2.0 mm extension into pulp chamber and $5^{\circ}-7^{\circ}$ occlusal divergence angle. The base of the pulpal floor was flattened by application of restorative material for better seating of endocrown.





Fig:3(a) Linning the floor of pulp camber, (b) mandibular impression

After evaluating the entire cavity and the interocclusal space, the impression of the tooth was taken by double impression technique using addition silicone and temporization was done with heated gutta percha stick. After visualization and analysis of the quality of the impression, A1 shade was selected and sent the impression to the laboratory for CAD/CAM Fig (4)(a)&(B). v endocown was mode 5(a) & 5(b)





Fig (4)(a)&(B) Computer - aided design and computer - aided manufacturing outline of the margins





Fig: 5 (a) & (b) :- Endocrown Try in on

In the following session, the internal surface of the endocrown & prepared cavity was etched. Next, a coat of a silane coupling agent

Journal of Updates in Dentistry, Jan-Jun. 2023; 12(1) : 45-50

was applied for 1 minute and dried & luted with a thin layer of a dual polymerizing resin. After that, it was polymerized for 60 seconds on all surfaces. The restoration was examined for any occlusal interference using ceramic finishing instruments.



Fig:6 (a) -Post op IOPA wrt 46, (b) Post op photograph CASE REPORT 2-

A 40-year-old patient reported to the department of Conservative Dentistry and Endodontics and presented with a chief complaint of spontaneous sharp pain in the maxilla of 4 days duration that radiated to the right ear. Although he experienced no thermal sensitivity, he reported that the pain was worse at night and prevented him from sleeping. The upper left first molar was sensitive to palpation and percussion. Probing depths were within normal limits. The radiograph revealed radiolucency involving the pulpal space, with PDL widening



Fig:7-Preoperative radiograph

The diagnosis made was Symptomatic ireversible pulpitis with apical periodontitis wrt 26. The treatment plan decided was root canal treatment followed by the restoration and reinforcement of remaining tooth structure with the placement of fiber post horizontally followed by core build up with composite resin without any subsequent prosthetic crown wrt 46. After obtaining the patient's consent, the treatment was done.



Fig:8-Postoperative radiograph

After root canal treatment, a wide MOD cavity was planned to restore with help of novel treatment modality by placing fiber post horizontally followed by core build up with composite resin without any subsequent crown (fig. 9).



Fig:9-MOD cavity prepared wrt 26

The perforations were made (for the horizontal glass fiber post) at the most prominent point on the buccal and lingual walls at the middle space between mesial and distal surfaces with no. 4 round bur.

Extremities of post were cut with straight fissure bur and it was tried in the cavity for proper fit. The wall of MOD cavity was etched by using 37% phosphoric acid for 15 seconds, rinsed with water spray, and air dried. Then MOD cavity was bonded by using dentin bonding agent (SwissTEC) according to the manufacturer's instructions. Flowable composite (Tetric N Flow) was first applied on root canal orifices and polymerized from proximal and occlusal areas. The fibre post was luted with GIC luting cement in the areas of perforation (fig. 10).

Journal of Updates in Dentistry, Jan-Jun. 2023; 12(1) : 45-50



Fig:10-Luting of fiber post

Then resin composite (FiltekZ250 XT; 3M/Espe) was applied and polymerized following the incremental technique procedure for 30 seconds using light emitting diode (Satellic). It was then finished and polished using Super–snap rainbow discs (Shofu)

Fig:11- composite buildup

DISCUSSION-

Along with a successful endodontic treatment, tooth requires an appropriate post endodontic restoration to revert its function back to normal. The concept of ideal restoration for endodontically treated teeth has always remained to be a challenge clinically. Especially in the tooth with large coronal damage, for reestablishing the function and form requires a careful assessment and treatment planning.⁹

With the current advances in dentistry and the development of dental computer-aided design/computer-aided manufacturing, custom-made fiber post and core, horizontal fiber post, ceramic inlays, onlays, and endocrowns became better alternatives.¹⁰

For reinstating a molar tooth with large coronal damage, Endocrown treatment procedure can be considered as a conservative approach and one of the most feasible alternatives to traditional post and core restoration. Based on systematic review and meta-analysis by Sedrez-Porto et al. endocrown restorations performed better in comparison to conventional restorations in terms of fracture strength. This is in accordance with other studies which have proven the validity of bonded endocrowns in comparison to traditional crowns.¹¹

In this case report, the fabricated endocrown is lithium disilicate ceramic-based material which presents an advantage over the other materials due to its esthetic, adhesive, and mechanical interlocking with resin cement.^{12,13} According to a study by Altier et al., which compared the fracture resistance of three different endocrowns made of lithium disilicate ceramic and indirect resin composite, it concluded the higher fracture strength of lithium disilicate ceramic endocrown than indirect composites.¹⁴ Furthermore, a recent study by Zoidis et al. proposed the use of polyetheretherketone (PEEK) for the fabrication of endocrown.¹⁵

In contrast, second case horizontal fiber post used as restorative material for rehabiliation .This is a relatively fast and simple procedure (30 minutes) and can be performed by the endodontist or general dentist at a low cost. The only prerequisite is that the buccal and lingual walls remain standing.¹⁶

In a recent in vitro study, Scotti et al¹⁷ and Salameh et al¹⁸ showed that compared with a direct composite restoration, a composite restoration reinforced with glass fibers significantly increased fracture resistance, regardless of whether the fibers ran mesiodistal or buccolingual or were in the form of a vertical post. The buccolingual direction scored the best option among the 3 methods discussed previously. In another in vitro study, Karzoun et al19 tested fracture resistance on endodontically treated premolar teeth restored in a variety of ways and loaded with a universal testing machine (Instron Corp, Canton, MA). They found that a composite resin core buildup with a single horizontal fiberglass post running buccolingually doubled the fracture resistance over a restoration with composite resin alone.

The intra-radicular placement of a post to strengthen the dental structure has been reported to be ineffective.²⁰⁻²⁴Further, post-space preparation may lead to the significant weakening of the root. Additionally, during post-space preparation, procedural errors may arise. Although not very common, perforations in the apical part of the root or the lateral mid-root wall of a "strip-perforation" can be included in these accidents. Placing posts may further increase the likelihood of root fracture and treatment failure.25 Therefore, HGFP is a less invasive direct restorative technique, a fast and simple procedure, and cheaper that provides cuspal protection for MOD cavities and subsequently reinforces the ETT. Thus, the use of HGFP with composite resin in MOD cavities of ETT seems to be a promising approach for dental practitioners.

CONCLUSION-

Attempts to save existing natural tooth dates back to more than a century and now dentistry has advanced enough to retain a well functioning dentition for a lifetime. Although loss of anterior tooth is more of patient concern on an aesthetic view point, loss of posterior tooth is eventful often leading to drifting of adjacent tooth, loss of arch length and loss of masticatory function. This often necessitates subsequent preventive and corrective measures. The use of endocrowns and horizontal fibre post help in achieving such objective.

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1. West JD, Oates TW. Identification of stability changed for immediately placed dental implants. Int J Oral Maxillofac Implants 2007;22:623-30.

Book Reference Style:

1. Lee JS, Kim JK, Park YC, Vanarsdall RL. Applications of orthodontic mini implants. Chicago: Quintessence 2007.

 Baumgartner JC. Pulpal infections including caries. In: Hargreaves KM, Goodis HE (Eds). Seltzer and Bender's Dental Pulp. Chicago: Quintessence 2002:281-307.

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