Jul-Dec 2023 Volume 12 Number 2 ISSN 2250-0855

# Journal of Updates in Dentistry

Official Publication of
Surendera Dental College & Research Institute
Sri Ganganagar, Rajasthan, India

*Jul-Dec 2023* *Volume 12* *Number 2* *ISSN 2250-0855*



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JOUD

Jul-Dec 2023 Volume 12 Number 2

Journal of
Updates in Dentistry



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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 non-emergent 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 t he 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*
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# Journal of Updates in Dentistry

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## Contents

Original Article

# INCIDENCE AND PATTERN OF IMPACTED MANDIBULAR THIRD MOLAR - A RETROSPECTIVE RADIGRAPHIC STUDY IN RAJASTHANI POPULATION

*Dr. Manisha Solanki, Dr. Shakya Kr. Laxmi , Dr. Harish Vaishnav, Dr. Shweta Nehe , Dr. Vinod Mehra , Dr. Kishan Kumar*

## ABSTRACT

**Aim :-** To investigate the incidence and pattern of impacted mandibular 3rd molar.

Material and Method:- A retrospective study was conducted in Surendera dental college and reseach institute for the patients of oral and maxillofacial department who is having impacted mandibular 3rd molar . The 20 OPGs (orthopantagrams) were taken between the age of 20 - 55. Data include unilateral and bilateral impaction is shown in figure 1 and 2 respectively, angulation, class,level,difficulty index and nerve approximation.

**Results:-** The average age of subjects with impacted third molar was between the age of 20 - 30 years in Rajasthani population. Males were 2 times more expected to have bilateral mandibular impacted teeth than females.Mesioangular impaction(60%) was the most common.Level B impaction was the most common among all the levels.The most frequently encountered relationship with ramus of mandible was class 2. Relationship of roots of the mandibular third molar with inferior alveolar nerve . There is no involvemet in 60% of cases. The moderately difficulty index is most common among the cases.

## CONCLUSION:-

Mandibular third molar impaction are one of the common developmental condition in the modern civilization. Assessing the third molar and prognosis of its eruption is mandatory for better patient management because of numerous complications associated with unerupted third molar.

Keywords: Angulations , impaction, third molar .

## INTRODUCTION

Impaction is defined as a cessation of eruption of a tooth caused by a clinically or radiographically detectable physical barrier in the eruption path or by an ectopic position of the tooth

Impacted teeth are those with a delayed eruption or not expected to erupt completely based on clinical and radiographic assessment. Dental impaction may be the consequence of local factors and systemic factors.

Local factors may include mechanical obstruction (by a supernumerary tooth, cyst, or tumor), insufficient space in the dental arch due to skeletal incongruities (micrognathia) or the premature loss of deciduous teeth or a tooth -arch size discrepancy.

Systemic factors such as genetic disorders, endocrine deficiencies and previous irradiation of the jaws are also associated with a failure of tooth eruption. Any permanent tooth can become impacted; however, third molars, maxillary canines, maxillary and mandibular premolars, and maxillary central incisors are the teeth most frequently involved.

Among all the teeth the lower molars are the most frequently impacted teeth as it is the last teeth to erupt in the dental arch and removal of impacted third molar is second commonest oral surgical procedure first being simple tooth extraction. The third molar is the commonly impacted tooth with a frequency of 18% - 32%. In third molar impaction, panoramic radiographs are used generally to assess the angular position , level of impaction , amount of covering bone, and relationship between inferior alveolar canal with the third molar .

## MATERIAL AND METHODOLGY

A retrospective study was conducted . The 20 OPGs (orthopantagrams) were taken between the age of 20 - 55 . Data include unilateral and bilateral impaction, angulation, class and level.

## INCLUSION CRITERIA

The inclusion criteria of the study included the following:

1. Patients of age 20–50 years
2. Presence of second molar adjacent to the impacted third molar
3. No filling for wisdom teeth or the second molar been undertaken before the study

## EXCLUSION CRITERIA

The exclusion criteria of the study included the following:

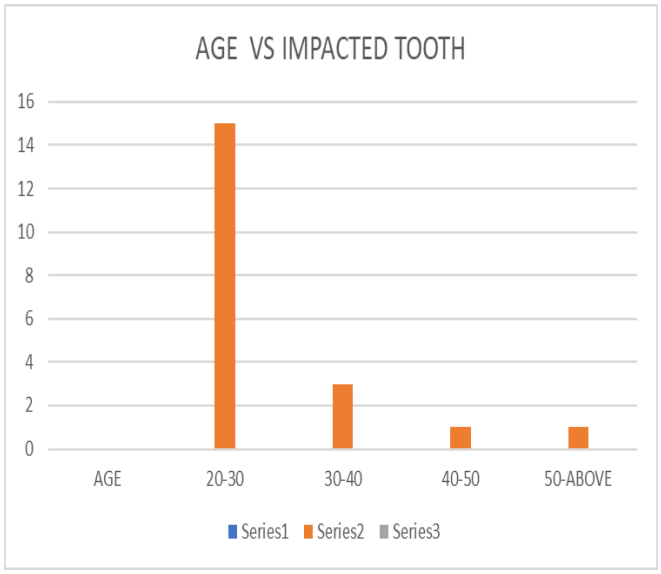
1. Age under 18 years and over 50 years
2. A history of extraction of permanent second molar
3. History of orthodontic treatment
4. History of endocrine disturbances
5. Craniofacial syndrome or anomaly
6. Incomplete records of patient's physical finding or medical history
7. Poor-quality OPG
8. Presence of any pathological lesions in the molar area such as cyst and tumors
9. Trauma/any pathology in the jaw that affects the alignment of dentition
10. Third molars without root completion

TABLE 1. SHOWING VARIOUS PARAMETERS NAMEAGESEXB/LU/LANGULATIONCLASSLEVELDIFFICULTY INDEXNERVE

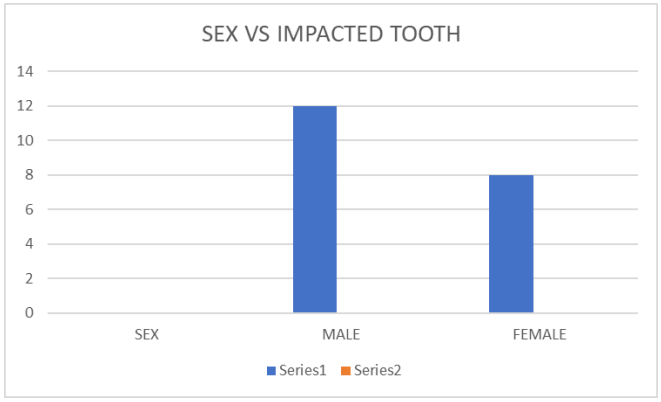
| NAME | AGE | SEX | B/L | U/L | ANGULATION | CLASS | LEVEL | DIFFICULTY INDEX | NERVE APPROXIMATION |
|---|---|---|---|---|---|---|---|---|---|
| VINOD KUMAR | 50 | MALE | BILATERAL | ---------- | VERTICAL | CLASS 1 | A | MODERATELY DIFFICULT | NO |
| ANGREJ | 28 | MALE | ---------- | UNILATERAL | MESIOANGULAR | CLASS 1 | A | SLIGHTLY DIFFICULT | YES |
| AVTAR | 55 | MALE | BILATERAL | ---------- | DISTOANGULAR | CLASS 2 | B | MODERATELY DIFFICULT | NO |
| SUMIT | 22 | MALE | BILATERAL | ---------- | MESIOANGULAR | CLASS 2 | B | MODERATELY DIFFICULT | YES |
| TUSHAR | 22 | MALE | ---------- | UNILATERAL | MESIOANGULAR | CLASS 2 | B | MODERATELY DIFFICULT | NO |
| AJAY | 25 | MALE | BILATERAL | ---------- | MESIOANGUALR | CLASS 3 | C | SLIGHTLY DIFFICULTY | YES |
| SUMAN | 25 | FEMALE | BILATERAL | ---------- | HORIZONTAL | CLASS 2 | B | VERY DIFFICULTY | NO |
| GODARA CHANDER | 39 | MALE | BILATERAL | ---------- | VERTICAL | CLASS 3 | C | VERY DIFFICULTY | YES |
| SAHIL | 24 | MALE | ---------- | UNILATERAL | HORIZONTAL | CLASS 3 | C | VERY DIFFICULTY | YES |
| PAWAN | 29 | MALE | ---------- | UNILATERAL | HORIZONTAL | CLASS 3 | C | VERY DIFFICULT | NO |
| DIWANSHI | 20 | FEMALE | ---------- | UNILATERAL | VERTICAL | CLASS 2 | B | MODERATELY DIFFICULT | YES |
| JASVIR | 32 | MALE | BILATERAL | ---------- | VERTICAL | CLASS 1 | B | SLIGHTLY DIFFICULT | NO |
| KATARIA | 22 | MALE | ---------- | UNILATERAL | MASIOANGULAR | CLASS 1 | B | SLIGHTLY DIFFICULT | NO |
| SAKSHI | 23 | FEMALE | ---------- | UNILATERAL | MESIOANGULAR | CLASS 3 | B | MODERATELY | YES |
| DINESH | 21 | MALE | ---------- | UNILATERAL | VERTICAL | CLASS 1 | A | SLIGHTLY DIFFICULT | NO |
| SWATI | 27 | FEMALE | ---------- | UNILATERAL | VERTICAL | CLASS 3 | A | MODERATELY DIFFICULT | NO |
| GEETA | 32 | FEMALE | BILATERAL | ---------- | MESIOANGULAR | CLASS 2 | B | MODERATELY | NO |
| AKSHITA | 25 | FEMALE | ---------- | UNILATERAL | VERTICAL | CLASS 2 | B | VERY DIFFICULT | NO |
| AFSHA | 23 | FEMALE | BILATERAL | ---------- | DISTOANGULAR | CLASS 2 | B | VERY DIFFICULT | NO |
| RAJVIR | 24 | FEMALE | BILATERAL | ---------- | MESIOANGULAR | CLASS 2 | A | SLIGHTLY DIFFICULT | NO |

**RADIOGRAPHIC EXAMINATION:-** The OPG shows the angle of impaction , its depth , location, caries in second and third molar and relationship of impacted mandibular molar with inferior alveolar canal were noted.

**TABLE 2:-** GRAPH SHOWING DISTRIBUTION OF IMPACTED MANDIBUALR 3RD MOLAR ACCORDING TO AGE.AGE IN IMPACTED TOOTH

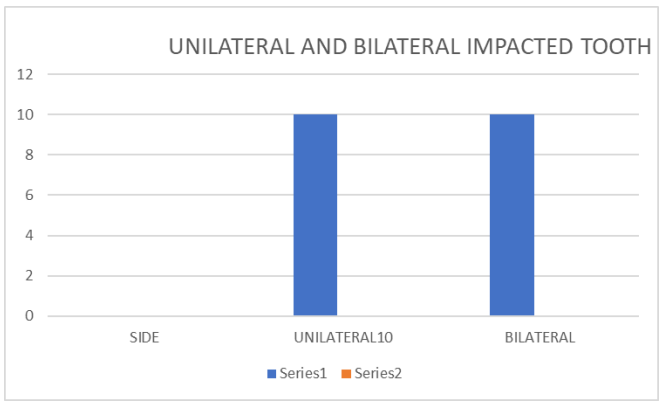


**SEX IN IMPACTED TOOTHTABLE 3:-** GRAPH SHOWING DISTRIBUTION OF IMPACTED MANDIBULAR 3RD MOLAR ACCORDING TO SEX




**CLASS IN IMPACTED TOOTHTABLE 6:-** GRAPH SHOWING DISTRIBUTION OF IMPACTED MANDIBULAR 3RD MOLAR ACCORDING TO CLASS.


**TABLE 4:-** GRAPH SHOWING DISTRIBUTION OF IMPACTED MANDIBULAR 3RD MOLAR ACCORDING TO UNILATERAL OR BILATERAL DISTRIBUTION.




**LEVEL IN IMPACTED TOOTHTABLE 7:-** GRAPH SHOWING DISTRIBUTION OF LEVEL IN IMPACTED MANDIBULAR 3RD MOLAR

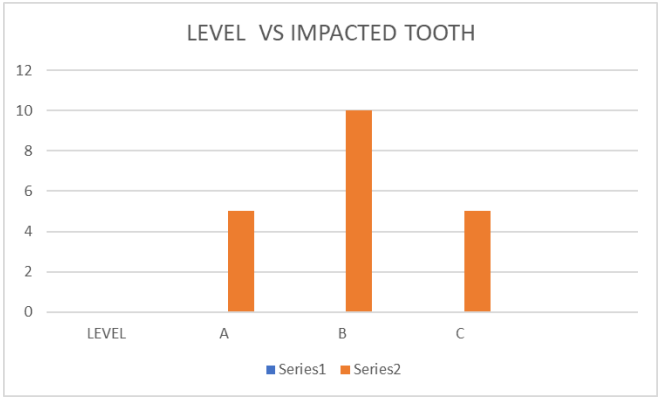
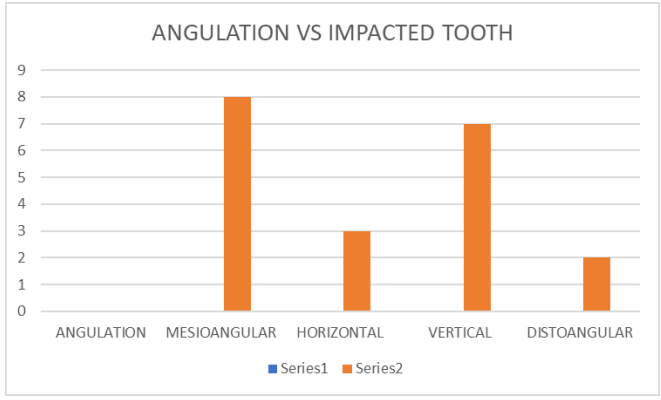
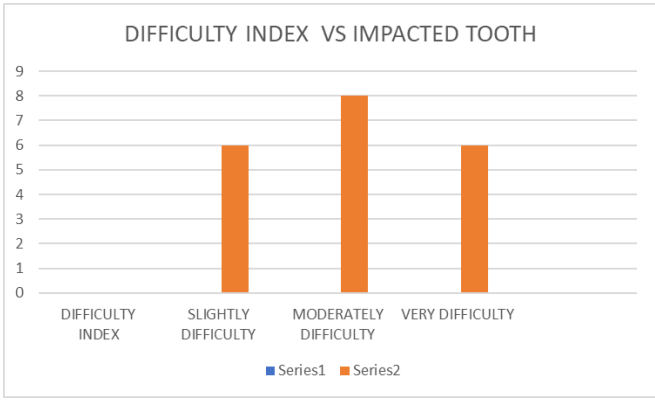



**TABLE 5:-** GRAPH SHOWING DISTRIBUTION OF IMPACTED MANDIBULAR 3RD MOLAR ACCORDING TO ANGULATION.

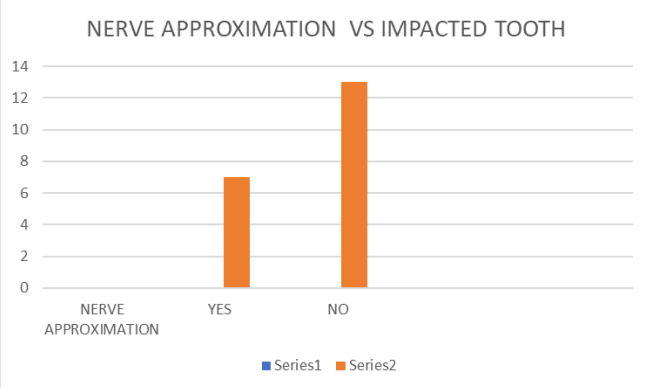



**DIFFICULTY INDEX IN IMPACTED TOOTHTABLE 8:-** GRAPH SHOWING DISTRIBUTION OF IMPACTED MANDIBULAR 3RD MOLAR ACCORDING TO DIFFICULTY INDEX.



**NERVE APPROXIMATION IN IMPACTED TOOTH TOTOOTOOTH**

**Table 9**. GRAPH SHOWING DISTRIBUTION OF IMPACTED MANDIBULAR 3RD MOLAR ACCORDING TO NERVE APPROXIMATION.




**RESULTS:-** A total of 20 patients with impacted third molar were recorded there were significantly more males than females , out of which 12 were males and 8 were females as shown in table 2. Males were 2 times more expected to have bilateral mandibular impacted teeth than females.

Average age of subjects with impacted third molar was between the age of 20 - 30 years with no. Of 15, 30-40 with 3 no. , 40-50 with 1 in no. and between 50- 55 with 1 in no.

Mesioangular impaction(60%) was the most common followed by vertical, horizontal and distoangular is shown in table 5.

Level B impaction was the most common followed by level C and then level A is shown in table 7.

The most frequently encountered relationship with ramus of mandible was class 2 followed by class 3 and then class 1 is shown in table 6.

Relationship of roots of the mandibular third molar with inferior alveolar nerve is shown in table 7. There is no involvemet in 60% of cases.

The incidence of different difficulty index is shown in table 8. The most common difficulty index is moderatley difficult followed by very difficult index and slightly difficult index.

**DISCUSSION:-** Mandibular third molar impactions are prevalent developmental condition in this modern civilization and approximately more than half of patients (60.8%) with a mean age of 33.5 years-old revealed possessing at least one impacted third molar[1]. Because of numerous complications associated with impacted third molar, it is mandatory to assess the eruption pattern. Peer group of 20–40 years were selected as growth essentially completed by age of 17 years and possible to evaluate the eruptive status of third molar. However, it was observed that there are some changes seen in angulation till 32 years of age. The upper limit of 40 years were planned to avoid bias in relation to hard and soft-tissue remodeling[2].

Various theories have been proposed for the etiology of impaction of third molar including physical disruption of dental lamina, facial growth retardation, decreased anteroposterior and transverse dimensions, eruption in distal direction, early physical maturity, delayed mineralization of third molar, and lack of sufficient eruption force. The rate of impaction is higher in mandible compared to maxilla. This is because of the imbalance between bone remodeling process at the ramus region leading to either increase or decrease in mandibular plane angle. The nature of diet and degree of using masticatory apparatus also affect jaw and tooth size, incidence, and prevalence of impacted third molars on different populations.

In this study, the average age of subjects with impacted third molar was between the age of 20 - 30 years in Rajasthani population. There were significantly more males than females with impacted third molar in rajasthani popution. The number of impacted third molars in each subjects was significantly different between the sexes. Males were 2 times more expected to have bilateral mandibular impacted teeth than females. (Fig. 2) Mesioangular impaction(60%) was the most common. Level B impaction was the most common among all the levels. . The most frequently encountered relationship with ramus of mandible was class 2. There is no involvemet in 60% of cases with inferior

alveolar nerve.The most common difficulty index is moderatley difficult among the cases.

The common complication following surgical removal of mandibular third molar is injury to the inferior alveolar neurovascular bundle. Here, approximately 60% of impacted third molars have no relation of with the inferior alveolar canal.

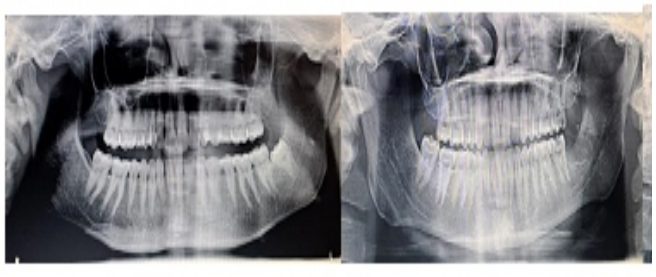
**CONCLUSION:-** The incidence of mandibular impaction was less in Rajasthani population with other population. In our study , the following conclusion cas be drawn:

Third molar impactions have a mandibular predominance. Fig 1&2)

Males have increased predilection of third molar impaction than females and were equally common on both sides.

Mesioangular impaction occurs more commonly followed by vertical impaction. The most common pattern of impaction was Level B and Class II. There is no significant relation with alveolar nerve.

**Figure 1 :** IMAGES OF UNILATERAL IMPACTED MANDIBULAR 3$^{RD}$ MOLAR



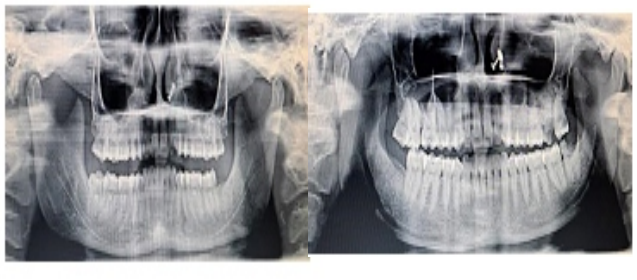
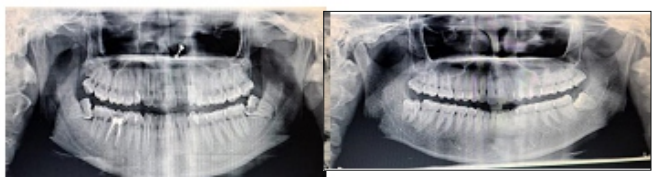


**Figure 2 :** IMAGES OF BILATERAL IMPACTED MANDIBULAR 3$^{RD}$ MOLAR



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Case Report

# CALCIFYING EPITHELIAL ODONTOGENIC TUMOR- A CASE REPORT

*Dr Rohit, Dr RajniAggarwal, Dr Harsha, Dr. Sajan*

## ABSTRACT-

The Calcifying Epithelial Odontogenic Tumor, a rare benign growth of the tooth origin, constitutes only about 1% of all odontogenic tumors. Initially identified by Pindborg, it is commonly known as the "Pindborg tumor". Histologically, this tumor manifests as three distinct components: clusters of polygonal epithelial cells, amyloid-like deposits, and calcifications. This report presents a case of this tumor in a 45-year-old woman who exhibited irregular tissue growth in the lower anterior region of her mandible. A treatment plan involving excisional biopsy of the growth was planned. This case underscores the significance of accurate diagnosis and treatment through the integration of clinical, radiological, and histological findings when dealing with Pindborg tumors.

***Keywords-*** Pinborg tumor, CEOT, Tumor, Electro-cautery

## INTRODUCTION

CEOTs, also known as Pindborg tumors, represent a rare subgroup of odontogenic tumors, constituting approximately 1% of all odontogenic tumors. Initially described by Jens J. Pindborg in 1955, these tumors primarily originate from the odontogenic epithelium, displaying unique histopathological features characterized by the presence of amyloid-like material and varying degrees of calcification. Pindborg tumor is a rare, slowly growing, nonencapsulated, locally invasive epithelial odontogenic neoplasm characterized by the presence of irregular sheets and islands of polyhedral often pleomorphic odontogenic epithelial cells along with amorphous eosinophilic substances and calcified area[1,2]

The epidemiology of CEOTs typically involves an occurrence in the third to fifth decades of life, with a slight predilection toward the male gender. While these tumors are infrequent, they manifest across different geographic regions and ethnicities, albeit with variable incidence rates.

The precise etiology of CEOTs remains elusive, with theories suggesting a potential link to odontogenic remnants, dental lamina remnants, or differentiation of epithelial elements within the periodontal ligament. Genetic mutations or alterations might also play a role in the pathogenesis, although the exact mechanisms remain under investigation.

CEOTs often present as slow-growing, painless masses in the jaw, primarily in the premolar and molar regions of the mandible. Clinical examination may reveal expansion of the cortical bone and displacement of adjacent structures. However, due to their indolent nature and variable presentation, diagnosing CEOTs solely based on clinical findings poses challenges.

The rarity of CEOTs underscores the importance of documenting and reporting individual cases. Each case contributes valuable insights into the diverse clinical presentations, histopathological variations, treatment modalities, and prognostic outcomes associated with CEOTs. Additionally, compiling and disseminating these cases enriches the collective knowledge base, aiding clinicians in accurate diagnosis, appropriate management, and prognostication.[3]

This case report aims to contribute to the existing body of knowledge by detailing a unique instance of CEOT, highlighting its specific characteristics, diagnostic journey, management approach, and subsequent patient outcome. Through the comprehensive elucidation of this case, we endeavor to further enhance the understanding and management of this rare odontogenic tumor.

The introduction sets the stage by providing a comprehensive background of CEOTs, emphasizing their rarity, clinical manifestations, diagnostic complexities, and the overarching significance of documenting individual cases in advancing medical knowledge and clinical practice.

## CASE PRESENTATION

A 45 year old female patient reported in department of Periodontology of surendera dental college with chief complain ofgrowth in lower fromnt teeth region since 2.5 years. patient was aysmtomatic before 2.5 year then she starts to develop a small growth in anterior lower region which gradually incresed to presnt size.groth was painless(Fig.1). Family history of the patient was insignificant. On clinical examination single growth is present on lingual side of lower anterior extending from 34 to 43 anterio posterioraly from incisal edge to floor of mouth superio inferiorly.growth was firm in consistency, blenches on pressure ,

pedunculated.

On first visit complete oral prophylaxis was done .Patient was recalled after 3 days for treatment.

On 2 nd visit a complete blood hemogram was done and all the values were within normal range. After procuring consent from patient cautry assisted excisional biopsy of growth was planned. Pros and cons of procedure were discussed with the patient.

Under local anesthesia with 2% lignocaine and 1: 80000 adrenaline, cautry assisted excisional biopsy was done removing the complete growth . (Fig.2)..

The sample was fixed in 10% formalin and sent to the pathological anatomy laboratory of the surendera dental college and research institute. Here it was included in paraffin then 5-micron thick sections were made, stained with haematoxylin and eosin and analysed under an optical microscope. Approximately two weeks later the histological examination report was received. The biopsy shows stratified squamous epithelium lined lesion showing nest islands and trabecule of epithelial cell with areas of calcification these features are suggest growth as calcifying epithelial odontogenic tumor.[4]

**Fig.1 Pre-Operative**

**Fig.2 Cautry Assisted Excision**

**Fig.3 Post-operative**

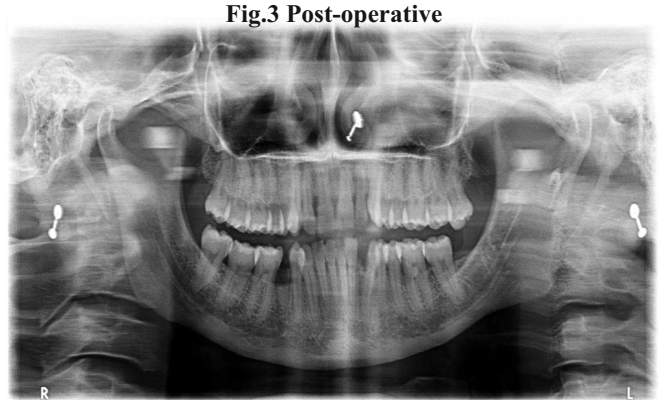

**Fig.4 OPG**

## DISCUSSION

The discussion segment in a case report on Calcifying Epithelial Odontogenic Tumor (CEOT) provides a platform for an in-depth analysis and interpretation of the presented case, juxtaposed against existing literature, clinical implications, limitations encountered, and the broader significance of the findings.

This case is situated within the broader context of documented CEOT cases. Comparative analysis reveals similarities or deviations in clinical presentation, histopathological characteristics, treatment modalities, and outcomes across various reported cases. By aligning our case with existing literature, we contribute to the continuum of knowledge surrounding CEOTs, accentuating its unique features or deviations.

The diagnostic journey in this case underscores the intricate nature of diagnosing CEOTs, characterized by their indolent growth and variable clinical and radiographic presentations. The correlation between clinical, radiographic, and histopathological findings is crucial in establishing an accurate diagnosis. Our case highlights the significance of integrating these modalities to

facilitate timely and precise diagnosis, essential for effective treatment planning.

Discussing the diagnostic challenges encountered in this case elucidates the complexities clinicians face when differentiating CEOTs from other jaw lesions, such as ameloblastomas, adenomatoid odontogenic tumors, or other odontogenic cysts/tumors.[5] These challenges underscore the necessity of comprehensive diagnostic assessments, often involving multiple diagnostic modalities and expert collaboration, to achieve accurate diagnoses in cases of CEOT.

The treatment approach employed and the subsequent favorable outcome in our case reaffirm the significance of complete surgical excision as the primary modality for managing CEOTs. However, variations in treatment strategies, such as conservative approaches for smaller lesions or more aggressive resections for larger or invasive tumors, should be tailored to individual patient factors and tumor characteristics.

Acknowledging limitations encountered during the diagnostic and therapeutic phases is pivotal. In this case, limitations might include challenges in preoperative diagnosis, variability in interpreting radiographic findings, or limitations in the surgical approach due to the tumor's size or anatomical location. Recognizing these constraints underscores the complexities inherent in managing CEOTs and prompts further research avenues to address these challenges.

The case report prompts considerations for future research endeavors, such as exploring novel diagnostic imaging techniques for enhanced preoperative diagnosis, investigating molecular markers aiding in differential diagnosis, or conducting larger-scale studies to validate optimal treatment algorithms for CEOTs.

In sum, the discussion section contextualizes the presented case within the broader landscape of CEOTs, highlighting its contributions, clinical implications, inherent challenges, and future directions. By critically analyzing the case in relation to existing knowledge, this section enriches the understanding of CEOTs, paving the way for enhanced diagnostic precision and therapeutic strategies.

## CONCLUSION

In the conclusion of this case report on Calcifying Epithelial Odontogenic Tumor (CEOT), a concise summary of the essential findings and the case's significance is encapsulated, emphasizing key takeaways and the contribution of this specific case to the understanding and management of CEOTs.

This case report detailed the clinical, radiographic, histopathological, and therapeutic journey of a patient diagnosed with CEOT. The presentation, diagnostic challenges, treatment approach involving [mention specific procedures], and subsequent favorable outcome were highlighted.

The presented case contributes valuable insights into the intricacies of diagnosing and managing CEOTs. The integration of clinical, radiographic, and histopathological data underscored the importance of a multidisciplinary approach for accurate diagnosis and optimal treatment planning. Moreover, the favorable outcome reaffirms the effectiveness of complete surgical excision as a viable therapeutic strategy for CEOTs.

This case exemplifies the diagnostic complexities and challenges faced by clinicians in delineating CEOTs from other odontogenic lesions. By emphasizing these challenges and discussing the nuances encountered, this report serves as a resource for clinicians, pathologists, and researchers, enriching their understanding of CEOTs and guiding future diagnostic and therapeutic endeavors.

The case report illuminates the significance of meticulous evaluation, interdisciplinary collaboration, and tailored treatment strategies in managing CEOTs. It emphasizes the need for continued vigilance in long-term follow-up to monitor for potential recurrences and underscores the importance of contributing individual cases to the literature for collective learning.

In conclusion, this case report elucidates a comprehensive understanding of CEOTs through a detailed presentation and analysis of a specific case, serving as a valuable addition to the

existing body of knowledge and offering insights that can potentially influence clinical practice and future research endeavors in the domain of odontogenic tumors.

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Case Report

# TOOTH-IMPLANT CONNECTION PROSTHESIS : A CASE REPORT

*Dr. Somil Chaudhary, Dr. Sandeep Kumar, Dr. Rajnish Aggarwal, Dr. Japjee Uppal, Dr. Kartik Sokhal*

## ABSTRACT-

A dental prosthesis that involves the combination of dental implants and natural teeth to replace missing teeth can not only increase the retention of the prosthesis but also provide good stability and aesthetic outcomes in most of the situations. However, prudent incorporation of the biomechanical principles is necessary for the design and construction of the prosthesis. Due to the anatomical differences in the functioning of tooth and an implant, certain issues can arise in the long-term success of the treatment that involves tooth-implant connection prosthesis. The evidences in literature reports that connecting the implant (rigidly fixed to the bone) and the tooth (attached to the bone with a periodontal ligament) is risky as it may lead the failure of prosthesis hence various connection types such as rigid and non-rigid have been proposed by various authors.

***KEYWORD-*** Fixed partial dentures, Non-rigid connection, Combination prosthesis, Ceka attachment.

## INTRODUCTION

Since many years dental Implant treatment has emerged as a universally accepted treatment modality by the clinicians worldwide. It has been proved that long term success rate of dental implant is more than 90% for treatment of both completely and partially edentulous patients. Implant-tooth connection for restoration of an edentulous span with a fixed prosthesis has long been criticised and it was believed that splinting a natural tooth with an implant leads to the failure of the prosthesis since the former is attached to the bone with a periodontal ligament while the latter is rigidly osseo-integrated to the bone. Most of the literature does not support the hypothesis of connecting the rigidly ankylosed implant to relatively mobile dentition[1,2,3]. With the advances in dentistry and modern technology, these limitations have been overcome by clinicians without any adverse effects to the implant, natural tooth or the prosthesis connected[4,5]. While on one hand some researchers recommend avoiding splinting of tooth and implant because of the difference in the support system of each[6,7,] some have reported successful connection between the tooth and implant as the stability of prosthesis depends on the outcome of treatment done[4] "Prosthesis in Combination of tooth with implant is highly acceptable" says Belser et al8.

## CASE REPORT

A 54 year old female patient reported to the department with multiple missing teeth in her upper right back tooth region. She gave history of edentulism due to pathogenic cause, following which her teeth were extracted.

Examination: The concerned area was examined and was noted that multiple teeth were missing i.e. 14,15,16,17,18.

Treatment plan: After the initial diagnosis, the patient was given the option of fixed or removable prosthesis and was explained about the advantages and disadvantages if any. Patient's treatment of choice was a fixed prosthesis but the patient wanted to retain her natural teeth and was not comfortable with the idea of individual implants in edentulous space considering the cost and invasiveness of the treatment. A detailed treatment plan was discussed and prosthodontic opinions were also considered. Hence, it was decided to give her an implant-tooth connected fixed partial denture, where the natural tooth was used as an abutment. According to the requirement of the case, a single implant of 3.75x10mm was placed in between the inter-radicular bone of upper second premolar (15) and first molar (16) respectively by taking support of natural tooth where, canine was taken as an abutment. In this case, a non-rigid FPD was planned with ceka attachment.

The following steps were followed:

Right canine prepared for porcelain fused to metal prosthesis with equi-gingival margins with shoulder finish line in order to enhance the esthetics [Figure 1].

Abutment at the position of right maxillary second premolar was also prepared [Figure 1].

Impressions were made after gingival retraction using retraction cord with elastomeric impression material following two-step putty technique.

Bite registration material was used to obtain interocclusal record.

After retrieval of the master casts, they were mounted onto the articulator using interocclusal record.

Pattern was build up with resin such that the matrix part of the

ceka attachment was attached at the mesial wall of retainer of second premolar and the patrix was housed to the mesial of the pontic replacing first premolar.

Metal try-in of the anterior segment along with the male part and posterior segment along with female part was done after casting to verify proper seating, and the excess was trimmed according to occlusion. And ceramic layering was added accordingly [figure 2].

The posterior segment with keyway was cemented first, followed by the anterior segment with key using glass-ionomer cement [Figures 3 and 4].

Figure 1: Prepared abutment

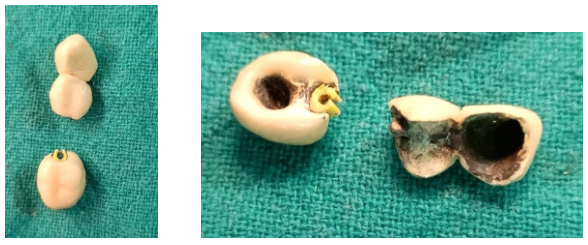

Figure 2: Non-rigid FPD (Ceka Preci-Line Attachment)

Figure 3: Cemented FPD at maximum intercuspation

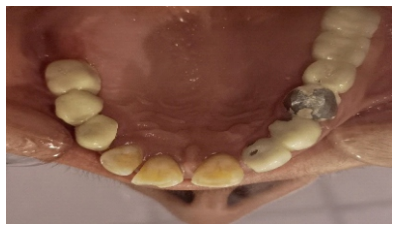

Figure 4: Occlusal View post cementation

## DISCUSSION:

There is a difference in the visco-elastic and biomechanical property of an osseointegrated implant and a natural tooth. Prosthesis with such a combination should be planned carefully after clinical and radiographic evaluation. Periodontal status and bone availability around the natural tooth are two immense factors that should be considered to correctly select the natural tooth as an abutment. Teeth with clinical mobility should not be considered for rigid prosthesis[9]. A group case discussion is encouraged for such cases which should comprise of an oral surgeon, a prosthodontist and a periodontist. A treatment of such nature is multi-staged. From treatment planning to surgical implant placement and followed by rehabilitation with a fixed prosthesis requires excellent skill and communication amongst various specialities to provide excellent patient care. Another key factor is tooth to implant distance; long and intermediate pontic between tooth and implant which may result into stress and bending of the bridge due to presence of axial forces[10]. Implants connected with teeth have long been used to support distraction osteogenesis devices which allow successful augmentation of bone length and height[11].

Advantages: Joining tooth to implant for rehabilitation of partial edentulous cases provide clinician with alternate treatment modality where proprioception and bone volume can be maintained eliminating the use of distal cantilevers and free end saddles that causes resorption of bone.

Conclusion: Further research is required on many aspects of this treatment paradigm. No conclusive studies are available to show the best number of implants and teeth to be connected using this treatment option. In addition, no conclusive evidence is available to show the best prosthesis span length that can be supported via connecting teeth and implants. Hereby the authors have reported a case of complete functionality and stability of the tooth implant, rigidly connected with an FPD and hope that this study might lay the grounds of further research and yield more successful results.

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Case Report

# INDIRECT COMPOSITE LAMINATE VENEERS FOR UPPER ANTERIOR TEETH DIASTEMA CLOSURE: A CASE REPORT

*Dr. Amandeep Kaur Sachdeva, Dr. Renu Aggarwal, Dr. Aakansha Chaudhary*

## ABSTRACT

Esthetic dental appearance of teeth is one of the patients' demands. This helped in the evolution of esthetic restorations, including the use of resin-based composite materials. Restorative dentistry is a major specialty in practical clinical dentistry. In this case report, indirect composite laminate veneer technique used for a patient with esthetic problem related to generalized upper anterior teeth diastema.direct composite laminate restorations have still less resistance against abrasions and fractures compared with indirect composite laminate veneers and ceramic laminates.In our case, in order to establish both functional and esthetic integrity, and considering more resistance and compressive strength than ceramics and similar abrasion rates compared with natural tooth structures, indirect composite laminate veneer restorations were considered.

**Keywords:-** Esthetics, laminates, Mid line diastema

## INTRODUCTION

Esthetic dental appearance of teeth is one of the patients' demands. This helped in the evolution of esthetic restorations, including the use of resin-based composite materials. Restorative dentistry is a major specialty in practical clinical dentistry.1 In order to treat dental caries, we need to excavate the pathology and restore the cavity with a proper dental filling material. One of the options is the use of light polymerized direct-tooth colored restorative materials.[1]

New ceramic and composite materials have increased conservative treatments of compromised anterior teeth. Indirect additive veneering was introduced in the 1980s as an alternative to full-coverage crowns. The concept of no preparation or minimal-preparation has followed the development of appropriate enamel bonding procedures.[2]

The color and integrity of dental tissue substrates to which veneers will be bonded are important for clinical success; using additional veneers with a thickness between 0.3mm and 0.5mm, 95% to 100% of enamel volume remains after preparation and no dentin is exposed. A number of clinical studies have concluded that bonded laminate veneer restorations delivered good results over a period of 10 years and more.[2] The majority of the failures were observed in the form of fracture or marginal defects of the restoration. Pure adhesive failures are rarely seen when enamel is the substrate with shear bond strength values exceeding the cohesive strength of enamel itself.[3]

Some indications for no-preparation veneering include erosion, incisal edge microfractures, corrections for short and small crowns (particularly in patients with larger lips), and alterations in the superficial enamel texture. Restoration of missing dental tissue with resin composites is quick, minimally invasive, and inexpensive and the resulting restorations are easy to repair, if necessary.[2]

In this case report, indirect composite laminate veneer technique used for a patient with esthetic problem related to generalized upper anterior teeth diastema is described.

## CASE REPORT:-

A 35-year-old male patient reported to the Department of conservative dentistry and endodontics, NIIMS College, Jaipur with chief complaint of spacing in his front teeth. The patient was not satisfied with his smile because of spacing in front teeth.

Various treatment options were explained to patient and it was decided to opt for indirect composite veneering taking age of patient into consideration. The color was recorded using the VITA SYSTEM 3D-MASTER, and shades 1M1 for cervical and 1M2 for incisal were considered as the color.

## TOOTH PREPARATION:

As a first step, after oral prophylaxis and shade determination of the teeth, the preparation began. (fig 1)

Fig 1: Preoperative photograph showing Midline diastema wrt 11 and 21

· The tooth preparation was carried out in accordance with the normative guidelines for veneer preparation for ceramic veneering.

· The outline form involved prepping the entire facial surface, extending from the gingival tissue level to the facial embrasures by roughly 0.5 to 1 millimetres.

· The teeth were prepared by cutting off roughly half of the enamel thickness using a coarse, tapered, rounded-end diamond (0.3 mm in the gingival region to 0.75 mm in the mid-facial and incisal regions, along with trimming off the incisive edge to about 1 mm).

· The proximal finish line was placed as lingually as permitted by the tooth anatomy. Preparation was finished with yellow colour fine grit finishing diamond point.

· Gingival retraction was performed using retraction cord and chemical retraction agent.

Impression was made using addition silicon impression material with double mix double impression technique and poured with die stone.

After making a cast for the prepared teeth, the die sent to the lab for making veneers. (fig 2)

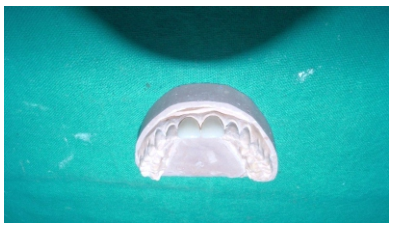

Fig 2: Photograph showing laminates on cast

After building up the veneers, Etching the teeth surfaces was achieved by means of Phosphoric acid 37% for 15 seconds. (fig 3)

Fig 3: Photograph showing etching wrt 11and 21

· Teeth were then rinsed for 30 seconds, and dried. A small brush was used to apply the bonding agents in a very thin layer then cured. (fig 4)

Fig 4: Photograph showing bonding agent applied wrt 11 and 21

· The veneers were prepared by etching their inner surface using Hydrofluoric acid 10% for 1 minute then rinsing for 30 seconds and drying.

· A thin layer of silane agents were applied on the veneers and left for 1 minute and then dried with water and oil free air stream.

· The light-cured or dual-cured resin cement was mixed up and was put onto the veneers and then applied gently over the teeth followed by light curing from a 5 cm-distance for 5 second primarily to simplify the removal of cement residuals.

· Thereafter, each veneer laminate was cured for 40 seconds to get the final cured of the resin cement. Finally all extra residuals of the resin were removed. (fig 5)

Fig 5: Photographed showing curing of the laminates.

· The final result was satisfying for the patient from her esthetic point of view, especially after closing all spaces between the frontal teeth. Certain advices were given to the patient in order to maintain the veneers and gain some primary stability (e.g. soft diet for 3 days), as well as advices related to oral hygiene maintenance. (fig 6)

Fig 6: Photograph showing closure of midline diastema

**DISCUSSION :-**

Today's dentistry requires more conservative treatment options. Therefore, composite laminate veneer restorations, which require minimal removal of tooth structure, are one of the best treatment choices. With the advantages such as only one appointment for the whole treatment time, very low costs compared with the ceramics and no need for long laboratory procedures, direct composite laminate veneers are popular in today's dentistry.[4]

However, direct composite laminate restorations have still less resistance against abrasions and fractures compared with indirect composite laminate veneers and ceramic laminates. Furthermore, indirect composite laminate veneer restorations due to polymerization outside of the oral cavity, and ceramic laminate veneers due to better color stability because of being less affected by the fluids of the oral cavity, are superior to direct composite veneers.[4]

In our case, in order to establish both functional and esthetic integrity, and considering more resistance and compressive strength than ceramics and similar abrasion rates compared with natural tooth structures, indirect composite laminate veneer restorations were considered. Full-ceramic crown restorations were not considered because they result in excessive tooth structure loss as well as their high costs.

One of the first steps for achieving good esthetic results in our case was an esthetic gingivectomy. Traditionally, the physiologic gingival architecture has been described as having a scalloped contour around the four surfaces of the tooth in accordance with the course of the cemento-enamel junction and thus, is concave apically in the free surfaces and convex occlusally at the tip of the papilla.5 Framing the teeth, within the confines of the gingival architecture, has a tremendous impact on the aesthetics of the smile. The impact on the beauty of a smile from an uneven gingival contour height can be dramatic and although the position of the zenith of the gingival tissue seems like a small detail, it can greatly influence the axial inclination and emergence profile of the teeth.[5]

These factors, some major and some minor, all add up to determine how pleasing the smile will be. The instructions given to the patient in our case for maintaining good oral hygiene were important for a long-lasting esthetic results (e.g. gingivitis-free situation).Though the final result was satisfying for the patient, a follow-up is highly recommended.

**CONCLUSION:**

With the development of new composite resins, indirect composite laminate veneer restorations can be a treatment option for patients with esthetic problems of anterior teeth, when applied with good patient's oral hygiene motivation.

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Case Report

# IMMEDIATE PROVISIONAL RESTORATION ON DENTAL IMPLANTS : A CASE REPORT

*Dr. Siddharth Singla, Dr. Sandeep Kumar, Dr. Rajnish Aggarwal, Dr. Ijaz Bhat , Dr. Kanika*

## ABSTRACT-

The therapeutic goal of implant dentistry is not merely tooth replacement but total oral rehabilitation. Considering dental implants as a treatment option can provide patients with positive, long-term results. Implants have developed into a viable alternative to conventional prosthetic reconstruction of edentulous areas. They provide excellent support for fixed or fixed detachable appliances, which increases function compared with conventional complete dentures. Implant dentistry has gone through many phases over the years. Modern technology and design allows us to predictably place our dental implants in correct sites and often load the implants at the time of placement. This case study demonstrates delayed placement of implants followed by immediate provisional restoration over it.

**KEYWORDS-** Immediate prosthesis over implants, implant temporary prosthesis

## INTRODUCTION

Ever since dental implants were first successfully employed in restoring completely edentulous mandibles in 1951, implant supported dental rehabilitations of various designs and complexity have been shown to be a reliable and predictable treatment option for both partially and fully edentulous patients[1].

The original Branemark protocol dictated that the initial phase of implant integration be at least 4 to 6 months before any restoration was placed[2] . "Conventional loading", as it is now known, is a reliable, safe, predictable, and accepted treatment modality that has been used as a point of comparison for other dental implant loading protocols.

Within the last decade, clinicians have increasingly begun to explore the possibilities of decreasing treatment time by early placement of the implant-supported restoration, or by placing implants in extraction sockets at the time of extraction[3]. Investigators are now increasingly reporting protocols designed to promote shortened treatment periods for implant-supported prostheses.

The concept of implant immediate loading includes all of the advantages of a one stage surgical approach. Also, during the osseointegration process, the patient does not have to use a removable denture, which increases function, speech, stability, comfort and improves certain psychological factors[4]. Splinted implants can decrease the risk of overload to each implant because of the greater surface area and improved biomechanical distribution[5].

The primary goal for immediate loading is establishment of direct bone implant contact.

## CASE REPORT

A patient aged 40 years old male reported to the Department of Prosthodontics Including Crown and Bridge at Surendera Dental College and Research Institute with a chief complaint of missing teeth in upper front region of mouth.

Patient had aesthetic concerns regarding face and wanted teeth to be placed immediately. Hence, planning regarding the same was done with help of cone beam computed tomography ( CBCT).[Fig 1.].

Conventional dental implants (Adin) were placed at the planned sites i.e 12 and 22,[ Fig 2, 3 & 4.] as well as sufficient torque was obtained i.e 30 N-cm. Abutments (Adin) selection was done i.e straight abutments 2 mm gingival depth, and tightened over implants with help of hex driver. [Fig. 2,3 and 4]. Diagnostic RVG was captured as shown in Fig 5.

Abutments were prepared for desired length and contour. [Fig 6.]. Modelling wax (Pyrax) was incorporated into abutment access holes for blocking impression material to flow within it and alginate impression (Septodont) was recorded in relation to upper and lower arch.[fig 7.].

Model cast was poured and separating media (Pyrax) was applied over it at desired site to be fabricated and provisional restoration was fabricated with pink self cure acrylic resin (Pyrax) and denture acrylic teeth (Premadent) [ Fig 8.].

All occlusal interferences were removed with the help of articulating paper and occlusion was checked [Fig 9 and 10.].

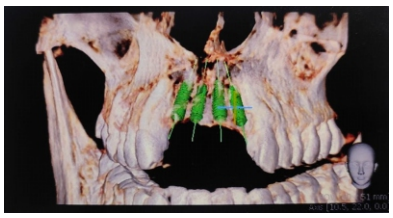

Fig.1

Fig.2

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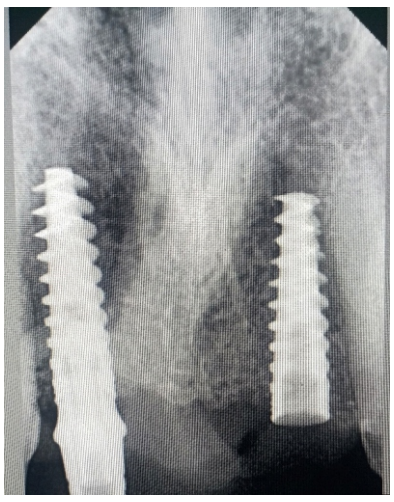

Fig.5

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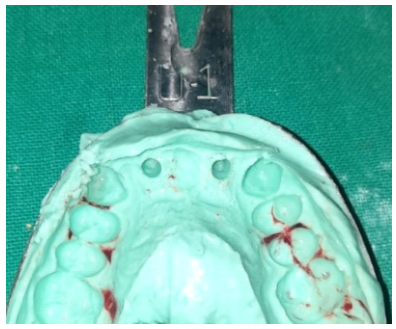

Fig.7

Fig.8

Fig.9

Fig.10

## DISCUSSION :

The success of this case underscores the importance of careful treatment planning, precise surgical technique, and selection of appropriate materials for provisional restoration. It also highlights the potential of immediate loading protocols to optimize treatment

outcomes and patient experience in implant dentistry.

In light of these findings, further research is warranted to explore the long-term stability and efficacy of immediate provisional restoration on dental implants across diverse patient populations and clinical scenarios. By continuing to refine and expand our understanding of immediate loading protocols, we can continue to advance the field of implant dentistry and improve outcomes for patients seeking oral rehabilitation.

## CONCLUSION :

Immediate temporization of anterior implant provides two major benefits . First and foremost, the soft tissue is supported from the day of surgery to the final restoration. This is the most significant clinical impact of the procedure. The second benefit is that patients are more eager to embrace the benefits of implant therapies. No longer are they threatened with a removable temporary that traditionally has gone hand in hand with the challenge of tooth replacement.

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Case Report

# "MAXILLARY NECROSIS: TWO CASES OF MUCORMYCOSIS AND THE IMPORTANCE OF EARLY DIAGNOSIS."

*Dr. Arya Jyoti, Dr. Meghanand T Nayak, Dr. Akash Dilip Gupta, Dr. Anjali Nayak*

## ABSTRACT

The maxilla rarely undergoes necrosis due to its rich vascularity. Maxillary necrosis can occur due to bacterial infections such as osteomyelitis, viral infections such as herpes zoster or fungal infections such as mucormycosis, aspergillosis etc. Mucormycosis also known as zygomycosis are common infection of humans where the causative agent i.e., Mucoromycotina is a member of mucorales. Mucormycosis is an opportunistic fulminant fungal infection, which mainly infects immunocompromised patients. The infection begins in the nose and paranasal sinuses due to the inhalation of fungal spores. The infection can spread to orbital and intracranial structures either by direct invasion or through the blood vessels. The fungus invades the arteries leading to thrombosis that subsequently causes necrosis of hard and soft tissues. We report two cases of maxillary necrosis by mucormycosis to emphasize early diagnosis of this potentially fatal fungal infection. Early diagnosis and prompt treatment can reduce the mortality and morbidity of this lethal fungal infection.

***Keywords:*** Maxillary bone necrosis; mucormycosis.

## INTRODUCTION

Mucormycosis is one of the most rapidly progressing and lethal forms of fungal infection in humans which usually begins in the nose and paranasal sinuses (1). This fungus invades the arteries and forms thrombi within the blood vessels that reduce blood supply and cause necrosis of hard and soft tissues (1,2). Once entered into the arteries, the fungus can spread to orbital and intracranial structures (3,4). Usually, mucormycosis presents as an acute infection and manifests as a rhinocerebral, pulmonary, gastrointestinal, cutaneous or disseminated form (1).

## CASE REPORT - 1

A 38-year-old male patient came to the oral medicine department with the chief complaint of pain and pus discharge on the left side of the face for 1 month. The patient was asymptomatic a month ago but later developed pain in the upper left back region of the jaw, below the eye and over the palate. The patient also complains of pus discharge in the same region. The pain was intermittent in nature, gradual in onset and aggravated by digital pressure. There was no history of any underlying disease. On clinical examination denuded bone was present concerning the 24 to 28 region and grade II to III mobility was present with 11, 12 and 21 to 28 region. Multiple draining sinuses were also present. Radiographic examination shows haziness of the upper left maxillary bone. A provisional diagnosis of osteomyelitis and fungal growth with sinusitis was made. An incisional biopsy was done. Then the tissue samples were sent to the Oral Pathology department. Histopathological examination with hematoxylin and eosin stain of the sinus lining showed connective tissue stroma consisting of aseptate fungal hyphae of 7-10 µm which are branched at variable angles. These fungal hyphae are also seen around blood vessels. H & E stained section of hard tissue showed bony trabeculae devoid of osteocytes. Hence, the final diagnosis of fungal osteomyelitis was made.

After a few days, an excisional biopsy of the same patient was done and the final diagnosis came out to be fungal osteomyelitis based on histopathological evaluation.

## CASE REPORT - 2

A 43-year-old male patient came to the oral medicine department with the chief complaint of pain, swelling and pus discharge in the upper back teeth region for 20-22 days. The patient was satisfactory 20 -22 days back then he started experiencing pain for which he had undergone extraction concerning 16 and 17 from a local dentist. After extraction pain did not subside and experienced the same pain which was continuous in nature and relieved after taking medication.

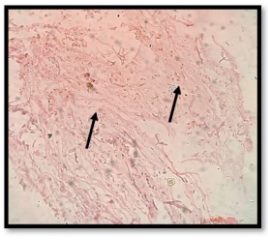

Figure a. Case 1-At 4x: aseptate fungal hyphae (black arrow).

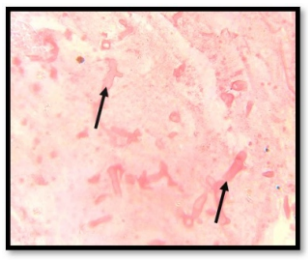

Figure b. Case 1-At 10x: aseptate fungal hyphae branched at variable angles (black arrow).

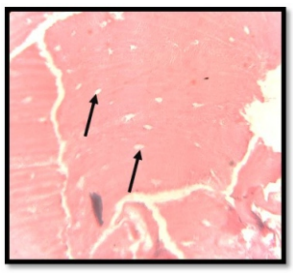

Figure c. Case 1: At 10x: the decalcified section shows empty osteocytic lacunae (black arrow).

On clinical examination, multiple sinuses with pus discharge were present, and unhealed socket concerning 16 and 17 was present. Grade III mobility with 11-15, 21 & 22 were present. A provisional diagnosis of Chronic suppurative osteomyelitis of the right maxilla and Osteomyelitis of the right maxilla was made. A biopsy was done and the samples were sent to the Oral Pathology department for histopathological evaluation.

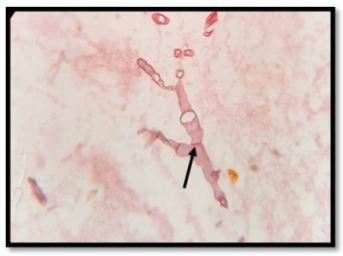

Figure d. Case 2: aseptate fungal hyphae branched at variable angles (black arrow).

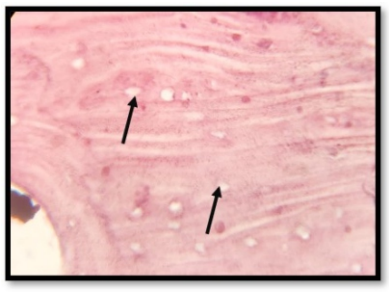

Figure e. Case 2: The decalcified section shows empty osteocytic lacunae (black arrow).

Histopathological examination with hematoxylin and eosin stain of the soft tissue section showed connective tissue stroma consisting of aseptate fungal hyphae of 7-10 µm which are branched at variable angles suggestive of Mucormycosis. H & E-stained section of hard tissue showed bony trabeculae devoid of osteocytes. Hence, the final diagnosis of fungal osteomyelitis was made.

## DISCUSSION

Mucormycosis incorporates a range of infections caused by Zygomycetes, a class of fungi that produce branching ribbon-like hyphae and reproduce sexually by the formation of zygospores (5). Pathogens can be found ubiquitously in fruits, soil, and faeces and can also be cultured from the oral cavity, nasal passages, and throat of healthy disease-free individuals (6). Opportunistic fungal infections such as mucormycosis usually occur in immunocompromised patients but can infect healthy individuals as well (7).

Mucormycosis of the oral cavity can be of two different origins. One is from disseminated infection where the gateway of entry is inhalation (through the nose) and the other is through direct wound contamination with dissemination to other viscera as a common complication (8).

When it arises from the nose and PNS, the infection may cause palatal ulceration leading to necrosis and the affected area appears black in a preponderance of the cases (8). Radiographically, opacification of sinuses may be noticed in conjunction with patchy effacement of bony walls of sinuses (9). Histopathologically, the lesion demonstrates broad aseptate fungal hyphae that show branching at variable angles (9). In the present case, the same histopathology was revealed. When diagnosed early, mucormycosis may be cured by a combination of surgical debridement of the infected area and systemic administration of amphotericin B for 3 months. Proper management of the underlying condition is also an essential aspect affecting the outcome of the treatment (10).

## CONCLUSION

Mucormycosis is an aggressive fulminant invasive fungal infection that can occur in patients with diverse precipitating factors such as uncontrolled diabetes, renal failure, organ transplant, long-term corticosteroid and immunosuppressive therapy, cirrhosis, burns, and AIDS malignancies such as lymphomas and leukaemias. In a diabetic patient, it can be triggered even by minor dental procedures such as tooth extraction. Multidisciplinary management of patients with mucormycosis is crucial and should be initiated promptly. Further attempts should be made for the early diagnosis of this disease and prompt management of the patient.

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Case Report

# A SIMPLE APPROACH TO IMPLANT SUPPORTED PROSTHESIS – HYBRID DENTURES

*Dr. Bharat Kumawat, Dr. Sandeep Kumar, Dr. Rajnish Aggarwal, Dr. Japjee Uppal, Dr. Jaspinder Kaur*

## ABSTRACT

An implant-supported hybrid prosthesis is an acrylic resin complete fixed dental prosthesis supported by implants which might be a solution in extreme cases in need of restoration for esthetics, function, lip support, and speech. This paper aims to present the esthetic and functional prosthetic rehabilitation of a borderline cases with implant-supported hybrid prostheses. A 65 years old female patient reported to Department of Prosthodontics including Crown & Bridge, Surendera Dental college and Research Institute, with a chief complaint of a compromised esthetic and mastication. After clinical evaluations, [4] implants in the maxilla and 4 implants in mandibula were planned. An excessive inter-arch dimension was observed in clinical examination, implant-supported hybrid prostheses were successfully performed. After 1 month of follow-up, no functional, phonetic, or esthetic problems with the restorations were noted. This case suggest that implant-supported hybrid prostheses can be a reliable alternative treatment procedure when a porcelain-fused metal fixed restoration does not satisfy a patient's requirements for esthetics, phonetics, oral hygiene, and oral comfort.

***KEYWORDS:***

Prosthodontics, hybrid denture, dental implants, all on [6], all on[4]

## INTRODUCTION

Dental implants have become increasingly important in oral reconstruction. The high rate of success of rehabilitation with implant-supported prostheses has increased esthetic demands of patients and clinicians[1]. To obtain satisfactory functional and esthetic results, it is essential to achieve osseointegration and the ideal location of implants to support the intended restoration[2].

The main objective in implant therapy is either to avoid complete removable dentures by placement of implant-supported fixed prostheses or to improve the retention and stability of removable complete dentures[3]. Basically, two approaches for an implant-supported fixed prosthesis exist. The first one is a metal-ceramic implant-supported fixed prosthesis consists of a ceramic layer bonded to a cast metal framework that can be cemented to transmucosal abutments or secured with prosthetic retention screws[3]. An alternative to this type of fixed prosthesis is an implant-supported hybrid prosthesis[2]. Implant supported metal-acrylic resin complete fixed dental prosthesis, originally referred to as a hybrid prosthesis was introduced to address the problems caused by unstable and uncomfortable mandibular dentures. The primary factor that determines the restoration type is the amount of intra-arch space[2]. In addition, other patient-relevant clinical parameters such as lip support, high maxillary lip line during smiling, a low mandibular lip line during a speech or the patient's greater esthetic demands should be evaluated[2].

Hybrid prostheses have a great number of advantages including reducing the impact force of dynamic occlusal loads, being less expensive to fabricate and highly esthetic restorations[2]. Furthermore, they may be successfully used by a combination of tilted and axially placed implants in partial edentulism in the posterior part of resorbed maxillae[3].

The purpose of this case report is to present the clinical experience and positive outcomes of treating patient by means of the implant-supported hybrid prosthesis.

## CASE REPORT

### CLINICAL AND RAGIOGRAPHICAL EVALUATIONS BEFORE PROSTHETIC PHASE

A 65-year-old female patient reported to the department of Prosthodontics including crown and Bridge, Surendera Dental college & Research Institute with a chief complaint of difficulty in mastication and compromised esthetic. Preoperative radiograph demonstrating several missing teeth and remaining teeth were periodontally compromised [Figure 1]. Patient was presented with three different treatment modalities which included removable prosthesis i.e., complete denture and fixed prosthesis which included implant supported overdenture or all on 4 or all on 6 implant. The patient expressed a desire for fixed prosthesis and after clinical evaluations and bone assessment, full mouth ALL ON 4 IMPLANTS were planned, in sites #12, 14, 22, 24, 32, 42, 44 [Figure 2].

For determining the inter arch distance, shellac record bases were fabricated and baseplate wax was used to form occlusion rims. Occlusal vertical dimensions were established. Centric relation records were made with modelling wax. Maxillary and mandibular diagnostic casts were mounted on a mean-value articulator and analyzed. Diagnostic model analysis showed that, intra-arch distance was 26 mm for Patient, Therefore, it was decided to fabricate implant-supported metal-acrylic resin screw-retained fixed dental prostheses for the treatment of patient. After 6 months period of waiting, radiographic evaluations confirmed that the implant fixtures had successfully integrated with the bone, so the prosthetic phase was started.

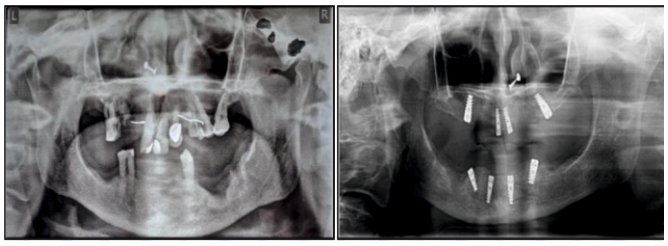

FIGURE 1: Preoperative Radiograph

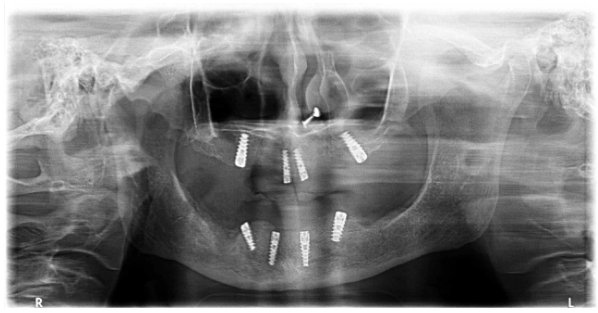

FIGURE 2: All on 4 implants placed in maxillary and mandibular arch.

PROSTHETIC PHASE

After 6 months of osteointegration of implants to the corresponding bone, second stage surgery was performed and healing screws were placed for 10 days interval both in maxillary and mandibular arch. After 10 days interval, healing screws were removed and TMA abutment of appropriate angulation were determined and placed [FIGURE 3].

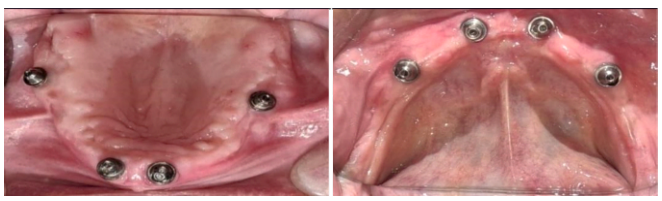

FIGURE 3: TMA abutment placed in maxillary and mandibular arch.

TMA - Implant impression copings (CLOSED TRAY) were screwed and tightened on TMA abutment and access holes were blocked using polytetrafluoroethylene strips both in maxillary and mandibular arch.

Final impressions were made using stock tray and addition silicon impression material. Impression copings were removed from patient's mouth and attached with TMA lab analogue and were placed in final impression. Impression copings were checked for accuracy and fit in impression material [FIGURE 4].

FIGURE 4: Definitive impressions of maxillary and mandibular arch.

Definitive impressions were poured using Type IV dental stone. Master cast were obtained with TMA lab analogues embedded inside master cast replicating implant placed in maxillary and mandibular arch [FIGURE 5].

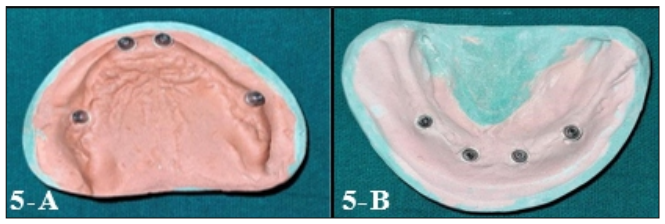


FIGURE 5: Maxillary and mandibular master cast with TMA lab analogue.

Special TMA plastic casting sleeves were attached to maxillary and mandibular master casts using screws. A 0.5 mm spacer wax was adapted to the maxillary and mandibular master cast so that the casted metal framework does not irritate the underlying gingival tissue and mucosa. [FIGURE 6].

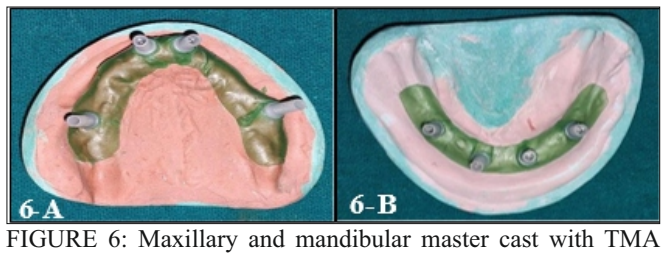


FIGURE 6: Maxillary and mandibular master cast with TMA plastic casting sleeve.

An acrylic pattern in form of mesh was fabricated over the spacer wax and adapted to the maxillary and mandibular master cast. Subsequently spacer wax was removed from framework [FIGURE 7].

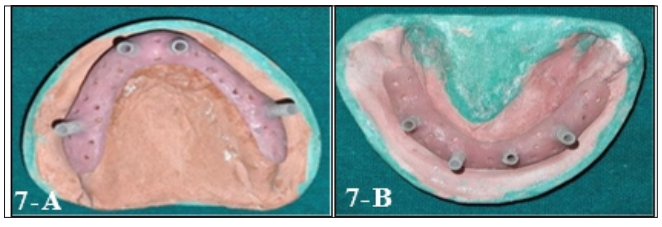


FIGURE 7: Acrylic mesh pattern framework adapted on the master casts.

Formed acrylic mesh pattern framework were secured into patient's mouth using hybrid screws and pattern were checked for accuracy and passive fit [FIGURE 8].

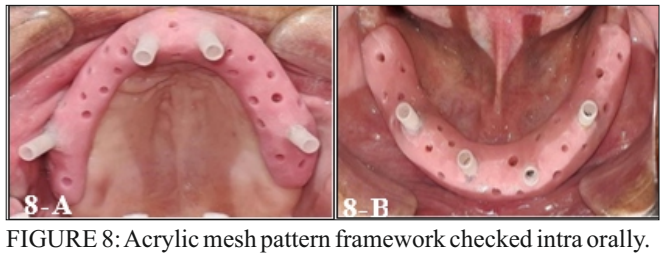


FIGURE 8: Acrylic mesh pattern framework checked intra orally.

After checking passive fit and accuracy of the meshed framework, sprue of variable thickness was attached to the maxillary and mandibular pattern. Acrylic frameworks were invested using phosphate bonded investment material and casting procedure was carried out.

Divestment procedure was performed and metal framework was

obtained. After divestment process, casted metal framework for hybrid denture were fitted on cast and checked for accuracy and fit.

After checking accuracy and passive fit, metal framework for maxillary and mandibular prosthesis were finished and polished. Finished and polished metal framework were tried in patient's mouth and checked for accuracy and passive fit [FIGURE 9].

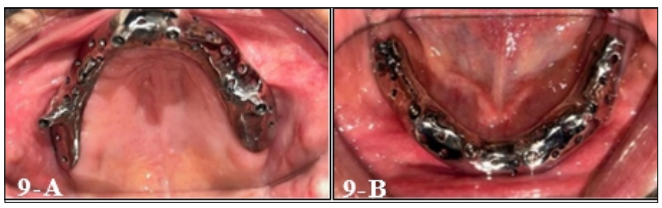


FIGURE 9: Maxillary and mandibular polished metal framework checked in patient's mouth.

Vertical jaw relation was recorded and centric was marked with modelling wax. Cast with jaw relation were articulated and teeth arrangement was done. Teeth arrangement was tried in patient's mouth and occlusion, phonetics and aesthetics were observed [FIGURE 10].

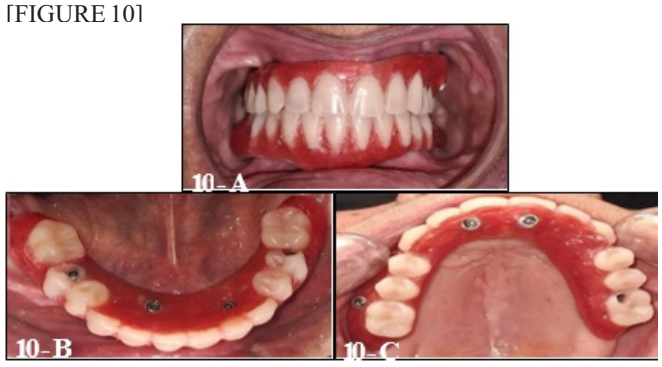


FIGURE 10: Teeth arrangement checked in patient's mouth.

After teeth setting trial, acrylization process of hybrid prosthesis began. Screws were tightened and framework was secured on master cast. Wax up was performed. After wax up flasking was done using dental plaster and prosthesis was invested and dewaxing was carried out. During entire process of acrylization, access holes of hybrid denture in both maxillary and mandibular were blocked using addition silicon (putty). After finishing and polishing of acrylized hybrid denture, denture was inserted in patient's mouth, screws were tightened and phonetics, occlusion and aesthetics were checked. Finally access holes were also blocked using polytetrafluoroethylene strips and covered with light cured composite resin [FIGURE 11].


FIGURE 11: Final acrylized hybrid denture and access holes blocked using light cured composite resin material.

Before discharging of patient, a post operative orthopantomogram was taken to verify the passive fitting and accuracy of hybrid denture. Orthopantomogram also verified the complete fitting of screws of hybrid prosthesis [FIGURE 12].

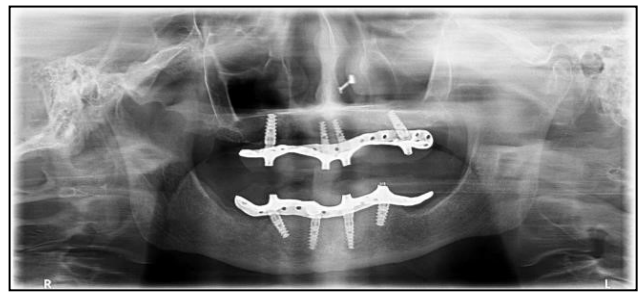

FIGURE 12: Post operative OPG of patient after fixation of hybrid prosthesis.

Pre operative and post operative photographs of both frontal and lateral view of patient showed improvement in aesthetic, lip support and satisfaction with the provided hybrid prosthesis [FIGURE 13].


FIGURE 13: Pre operative and post operative frontal profile of patient.

## FOLLOW UP CARE

Routine clinical assessments were made 1, 2, 6, and 12 months after the delivery of the prostheses and then annually with visual and radiographic examinations. Criteria for success included the following: Stability of the implant (lack of mobility), absence of pain or any subjective sensation at visit, lack of peri-implant infection with suppuration, and lack of continuous radiolucency around the implants[4]. Also, prosthetic complications and predictability were examined. No implants failed in patient after prosthetic rehabilitation during follow-up period and patients remained in continuous function with fixed prostheses. The patient agreed that her new denture looked nice, her speech was improved, it was easy to perform hygiene around the new prosthesis and her ability to chew had improved. The positive attitude of the patient and her satisfaction with the treatment that addressed her chief complaints and desires contributed to a good prognosis.

## DISCUSSION

Implant supported hybrid prosthesis can provide satisfactory

results where esthetic and functional requirements are demanding and challenging as in increased intra-arch space[2]. The patients' acceptance of the prosthetic treatment plan and restorative solution were certainly promoted by the fabrication of implant supported hybrid prosthesis. The other important aspect to consider is the maintenance of prosthetic rehabilitation as well as the implants by supporting structures[2]. Regular check ups are recommended every 6 or 12 months to avoid complications and to assess the status of the peri-implant tissue. Moreover, the measurement of radiographic peri-implant marginal bone loss during the follow-up period is also recommended[2].

## CONCLUSION

This clinical report has documented the esthetic and functional rehabilitation of patient with implant supported hybrid prostheses. It was concluded that this type of prosthesis can provide satisfactory results in patients in which excessive interach arch space, inadequate lip support presents a problem. It is essential to evaluate the patient not only with a surgical perspective, but also from a prosthodontic point of view.

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Case Report

# CERVICAL TUBERCULAR LYMPHADENITIS IN AN ADULT - CASE REPORT.

*Dr. Meghanand T Nayak, Dr. Anjali Nayak, Dr. Arya Jyoti, Dr. Manisha Solanki*

## ABSTRACT:

Cervical tubercular lymphadenitis (CTL), also known as scrofula, is the most common form of extrathoracic tuberculosis caused by mycobacterial cervical infections and a significant public health concern in endemic regions. This paper includes an in-depth examination of CTL epidemiology, pathophysiology, clinical presentation, diagnostic techniques, treatment regimens, and associated sequelae. A detailed understanding of CTL is critical for early diagnosis, quick therapy start, and disease progression and complication avoidance.

***Keywords:*** Cervical; Cervical tubercular lymphadenitis; Nontuberculous mycobacterium; scrofula; Tuberculosis.

## INTRODUCTION

Tuberculosis (TB) continues to be a significant worldwide health burden, with an estimated 10 million new cases and 1.5 million fatalities recorded each year.[1] In developing countries like India, TB is still a frequent infectious disease causing considerable medical burden. TB primarily affects the pulmonary system; however, it can also affect extrapulmonary locations such as lymph nodes causing tubercular lymphadenitis, which is common in the neck. Cases of extrapulmonary tuberculosis are increasing as they are generally associated with HIV infection. In adults, 95% of cases are caused by Mycobacterium tuberculosis species, while a small percentage of cases are due to atypical mycobacterium species or nontuberculous mycobacterium (NTM). However, in children, the atypical mycobacterial infection constitutes around 92% of cases.[2]

Cervical tubercular lymphadenitis (CTL) is the most frequent form of extrapulmonary tuberculosis, accounting for 20% of all TB cases in India[3] but is rare in developed countries.[4] It frequently manifests as painless, gradually growing lumps in the neck region. Patients may observe the formation of hard nodules, which are most typically found in the anterior or posterior cervical triangles. The disease is more common in tuberculosis-endemic areas like low-income countries and is linked to variables such as immunosuppression, starvation, and crowded living circumstances.[5]

## CASE REPORT

A 27-year-old male, previously healthy, reported with a complaint of gradually enlarging extraoral swelling of 3 days duration. He had a right-sided cervicofacial mass, with a diameter of 3.5 × 5.5 cm, which was painful and itchy but non-adherent to the overlying violaceous-tinted skin (Fig 1). The skin was excoriated and shiny. The swelling was firm on palpation and lacked any calor. The nodular lump was associated with sinus draining both purulent and serous fluids. He didn't have any previous history of fever, cough, or weight loss. No history of previous tuberculosis was recorded.

Fig 1.: Cervico-facial mass with violaceous tinted skin.

His chest radiography and ultrasonography of the abdomen were normal, although a positive Mantoux Tuberculin skin test (TST) with an induration of 15 mm was recorded.

Biopsy of cervicofacial mass revealed a nonspecific granulomatous response with ill-defined aggregates of epithelioid cells, lymphocytes, and minimal or no caseous necrosis. A complete breakdown of the cells with loss of architecture and amorphous collection of necrotic debris along with fine basophilic dust suggestive of fragmented nuclear chromatin was appreciated in the necrotic region. A granulomatous reaction with epithelioid macrophages along with multinucleated giant cells with horse-arrangement of nuclei suggestive of Langhans type of giant cells was also noted (Fig 2). A diagnosis of NTM-associated CTL was made.

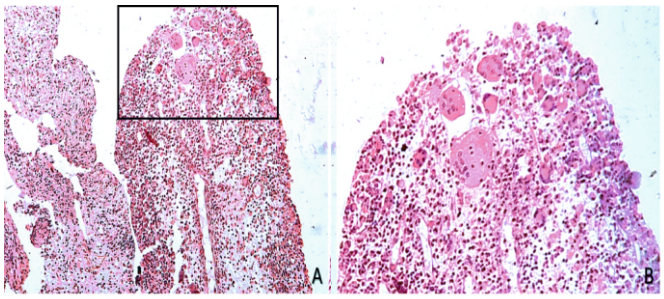


Fig-2 A: Low power field demonstrating dense inflammatory infiltrate with aggregates of epithelioid cells, Langhans' giant cells and lymphocytes. B: Inset corresponds to the higher-magnification image. Basophilic dust along with nuclear debris is also evident in the background.

The patient was started on a standard regimen of antituberculosis drugs consisting of a four-drug empiric treatment of isoniazid, rifampin, pyrazinamide, and ethambutol. A surgical intervention was carried out and a complete excision was made.

## DISCUSSION :

CTL can be difficult to diagnose due to its gradual onset and the possibility of confounding with other neck tumours such as lymphomas or other infectious aetiologies. A full clinical assessment is required, which includes a detailed medical history and physical examination.

Patients with Mycobacterium tuberculosis describe a painless, expanding, or persistent lump. In the majority of patients, systemic symptoms include fever/chills, weight loss, or malaise. NTM is characterized by a nontender, mildly fluctuant mass, with the underlying skin acquiring a violaceous tint. Because of the lack of calor, or warmth, this is referred to as a cold abscess. The lymph nodes become firm, rubbery, and matted; there may be fluctuant swelling.[6] The skin may be adhered to the underlying mass as the lesion advances. This stage may lead to sinus development or fistula formation and rupture leading to the spread of infection to surrounding structures. Furthermore, untreated or improperly treated CTL may contribute to fibrosis and scarring in the afflicted lymph nodes, resulting in chronic lymphatic blockage.

To begin prompt and efficient therapy, it is critical to distinguish CTL from other neck illnesses. Ultrasound, computed tomography (CT), or magnetic resonance imaging (MRI) investigations can help medical professionals identify the amount of lymph node involvement as well as assist them in developing appropriate therapeutic measures. Fine-needle aspiration cytology (FNAC) and/or biopsies of the afflicted lymph nodes is a helpful diagnostic technique, providing microscopic evidence of tuberculosis-specific granulomas and caseous necrosis.

A multimodal antitubercular therapy regimen, often consisting of isoniazid, rifampicin, ethambutol, and pyrazinamide, is the cornerstone of treatment for cervical TB. In situations of massive abscess development, substantial tissue loss, or failure to respond to medicinal therapy, surgical operation may be considered. Adherence to the whole course of medicine is required to prevent medication resistance and achieve a positive result. Although spontaneous healing is possible, it is uncommon and takes years to achieve.[7,8] CTL, like any chronic condition, can influence mental health. Psychosocial assistance, such as counselling and education, can assist patients in coping with the disease's emotional and social issues.

To conclude, while being less prevalent than pulmonary TB, CTL remains a major clinical entity. Early intervention and improved patient outcomes need healthcare practitioners to be aware of its clinical presentation, diagnostic problems, and proper management. For accurate diagnosis and successful treatment of CTL, a coordinated strategy integrating physicians, radiologists, and pathologists is required, contributing to worldwide efforts to control and eliminate tuberculosis.

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A Review

# ELEVATING ESTHETIC DENTISTRY THROUGH COLLABORATING INTEGRATION OF PERIODONTICS AND RESTORATIVE TECHNIQUES

*Dr Harsha, Dr Rajni Aggarwal, Dr. Archana, Dr Sajan, Dr Rohit*

## ABSTRACT

The skilled dentist works to build a lovely smile, taking into consideration the surrounding tissues' health in addition to the teeth's brilliant whiteness. A healthy periodontium offers a solid basis for a prosthesis that is both aesthetically pleasing and useful. On the other hand, tissues exhibit a harmonious esthetic blend at the restorative-gingival interface when restorations are intended to be self-cleaning and to support gingival health. In order to accomplish this, this review paper seeks to investigate the possibilities of an interdisciplinary approach. Restoration contour, margin adaptation, margin placement, prosthetic and restorative materials, fixed and removable partial denture design, restorative procedures, and occlusal function are important aspects of partial denture and restoration design that directly impact the periodontium. Controlling periodontal inflammation, adjusting gingival architecture, and maintaining periodontal health are all factors to be taken into account. This entails implementing a thorough treatment plan and closely monitoring the hard and soft tissues surrounding implants and teeth before, during, and after restorative procedures.

***Key words:*** Healthy Periodontium, biologic width, restorative-alveolar interface.

## INTRODUCTION

Crafting a beautiful smile relies heavily on the presence of healthy gums. The gingiva, or gum tissue, acts as a crucial backdrop for any dental work aimed at enhancing aesthetics. Additionally, a solid foundation provided by a healthy

periodontium—comprising the gums and supporting structures like bone—lays the groundwork for both functional and aesthetically pleasing dental prostheses. Essentially, without a healthy periodontium, achieving an attractive smile becomes significantly challenging.

In the realm of dentistry, the practice of restorative dentistry and periodontal health are intertwined in a symbiotic relationship. Poorly executed restorative treatments can exacerbate existing periodontal issues by creating environments conducive to plaque accumulation. Conversely, untreated periodontal diseases can hinder the success of restorative dentistry efforts.1 This mutual influence underscores the importance of addressing both restorative and periodontal concerns concurrently to ensure optimal oral health outcomes.

When restorations are crafted with the intention of being self-cleansing and promoting gingival health, they contribute to a seamless integration with the surrounding gum tissues. This integration results in a harmonious aesthetic blend at the interface between the restoration and the gingiva. Essentially, restorative procedures designed with gingival health in mind not only enhance the appearance of the smile but also support the overall health of the periodontium.1

The primary objective of this review is to delve into the impact of modern restorative techniques and materials on periodontal health. By examining how various restorative procedures and materials interact with the periodontium, this review underscores the importance of considering periodontal health in restorative dentistry practices. By prioritizing gingival health and adopting contemporary restorative techniques, clinicians can not only achieve aesthetically pleasing outcomes but also promote the long-term health and stability of the periodontium.

## RESTORATIVE CONSIDERATIONS THAT IMPACT THE PERIODONTIUM :

Restoration contour and contact areas

Marginal adaptation and defects

Location of margin

Role of provisional restorations

Design of fixed and removable partial dentures (RPDs)

Occlusal function

Prosthetic and restorative materials and alloy hypersensitivity

Iatrogenic damage from restorative procedures.

## RESTORATION CONTOUR AND CONTACT AREAS :

The durability of dental prostheses relies heavily on achieving precise restorative contours.2 These contours ensure proper fit and interaction with surrounding tissues, vital for clinical success.

Maintaining the axial form of teeth, their shape and alignment along the tooth axis, is crucial. This form serves to protect and stimulate the marginal periodontium, where the tooth meets the gums. Teeth with proper axial form shield the periodontium from damage and promote healthy blood flow, preventing issues like gum recession. Thus, preserving axial form enhances the periodontium's protective role, ultimately extending the lifespan of dental restorations.3,4

Physiologic tooth contouring

· The buccolingual bulge should be <0.5mm wider than the cement-enamel junction.3,5,6

· Adequate space is essential in three dimensions: at the gumline to ensure proper contour for effective plaque removal, at the top for restoring proper biting alignment, and along the tooth's axis to allow for a sufficient thickness of veneer material, ensuring an aesthetically pleasing dental prosthesis.

## PROBLEMS WITH OVER CONTOURING

· "Food traps" can develop due to open contacts, overhangs, or plunger cusps.

· Inadequate occlusal design and subpar aesthetics contribute to dental issues.5,6

· Restorations with improper coronal contours hinder oral hygiene access and may exert mechanical pressure on the gums, compromising gingival health.7

· Plaque buildup, inflammation, bleeding, and potential bone loss are consequences, with plaque being the main factor in gingivitis.8

Problems with misplaced contacts

· Misplaced contacts lead to issues such as horizontal food impaction caused by the tongue, lips, and cheeks due to poorly contoured interproximal surfaces.

· Lower fixed partial dentures typically accumulate more food than upper dentures, especially around the molars.

· Dentures are subjected to lifting and rotating forces.

· Deflective occlusal contacts pose a problem.9

## MARGINAL ADAPTATION AND DEFECTS:

· Scientific evidence reveals that even seemingly successful crowns may have open margins, with an average gap of approximately 100 nm. These gaps can harbor bacterial plaque, even around well-fitted margins, leading to inflammation.4,5

· The tooth-restoration interface may exhibit roughness due to surface scratches on meticulously polished acrylic and ceramic crowns. Additionally, inadequate marginal fit, luting material dissolution, and disintegration can cause crater formation between the restoration and the prepared tooth, leading to gingival inflammation.10

## LOCATION OF MARGIN: THE CLINICAL SIGNIFICANCE OF MARGIN PLACEMENT

Eissman et al. proposed design guidelines for fixed partial dentures, emphasizing that crown margins should ideally be situated on tooth surfaces fully exposed to cleansing action, preferably above the gum line or slightly within the gingival crevice.3 Research by Eissman suggested that thorough tooth brushing effectively cleansed areas up to 0.7 mm below the gum line, indicating that restorations should extend submarginally by no more than this depth.7 However, restorative needs often dictate subgingival margin placement for various reasons such as enhancing resistance or retention form, modifying tooth contour, addressing caries or subgingival fractures, managing furcation involvement, or concealing the restoration-tooth interface. Despite subgingival placement in such cases, optimal marginal fit is crucial to prevent plaque accumulation, as rough restorations or wide margins can harbor bacterial plaque.10

The concept of biologic width, and its applications in placement of gingival margins

Comprehending and effectively managing the concept of biological width is essential for achieving harmonious gingival outcomes with dental restorations. Biological width refers to the space occupied by soft tissues above the alveolar crest. It comprises the connective tissue attachment extending 1.07 mm above the crestal bone, the junctional epithelium attachment below the base of the gingival sulcus measuring 0.97 mm, and an

average sulcus depth of 0.69 mm. Typically, this 2–3 mm distance remains consistent in both healthy and diseased states in humans.11,12 Any encroachment on this biological width, whether due to tooth preparation, caries, fractures, restorative materials, or orthodontic devices, can result in bacterial buildup, persistent gingival inflammation, and ultimately, increased probing depths, gingival recession, or the formation of pockets.

**ROLE OF PROVISIONAL RESTORATIONS :**

Temporary restorations serve multiple purposes: shielding prepared teeth, alleviating sensitivity in vital abutments, and averting tooth migration. They're also instrumental in refining aesthetics, speech, and occlusal alignment prior to crafting the permanent restoration. High-quality temporary restorations feature precise marginal fit and smooth polishing to inhibit plaque buildup, thus mitigating inflammatory gingival issues like overgrowth or recession.1,13,14

**DESIGN OF FIXED AND PARTIAL DENTURES AND CROWNS FOR ROOTRESECTED TEETH :**

When designing a bridge, it's crucial to minimize the buildup of dental plaque and food debris while maximizing patient access for cleaning. Embrasures should be included for food passage and to safeguard gingival crevices.15 Stein emphasized the importance of pontic design over material choice. Pontics in fixed bridges should barely touch the mucosa to prevent hindrance in cleaning. The "modified ridge lap" pontic offers pinpoint, pressure-free contact on the facial ridge slope, with all surfaces being convex, smooth, and highly polished or glazed.11,16,17 While the sanitary pontic is the most hygienic, the ovate pontic combines both aesthetics and hygiene.

**OCCLUSION FUNCTION :**

Occlusal irregularities in dental restorations are a notable risk factor linked to accelerated periodontal deterioration, while addressing these irregularities appears to decelerate such destruction.18 Cantilever designs frequently lead to casting and root fractures, alongside periodontal inflammation around abutment teeth. Evaluating occlusion should occur post-reduction in inflammation from periodontitis to account for changes in tooth tissue relationships. Occlusal appliance therapy might precede occlusal adjustment for acute concerns. Should multiple abutments necessitate it, cantilevers should be used judiciously and with light occlusal contact.17

**RESTORATIVE MATERIALS AND ALLOY SENSITIVITY:**

Self-curing acrylics exhibit lower tissue compatibility. Inadequately finished composites can develop rough surfaces. Phosphate cements and silicates may cause irritation. Proper laboratory casting and meticulous polishing of restorations are crucial for preventing plaque buildup.19 Certain alloys used in oral environments can provoke adverse gingival responses.20 Glass ceramics and porcelain veneers with precise marginal fits typically cause minimal gingival irritation.

**IATROGENIC DAMAGE FROM PROCEDURES:**

Great care should be taken to minimize mechanical and chemical damage to natural teeth and the periodontium during dental restorative treatments. Misuse of electrosurgery, cryosurgery, and lasers can result in excessive necrosis of the gingiva and, in severe instances, the underlying bone. Applying excessive pressure when trimming and fitting bands may damage or sever the gingival attachment, potentially causing irreversible gingival recession.21 Leaving residual material from retraction cords in the gingival crevice can lead to periodontal abscesses later on. Injuries from rubber dam clamps and disks can also induce gingival inflammation.

**PERIODONTAL CONSIDERATIONS**

Before receiving restorative dentistry, inflammation must be resolved with periodontal therapy.

· Prior to the prosthesis being fabricated, a comprehensive periodontal evaluation should be performed during the design stages.

· Prosthodontics and periodontal factors, such as bone support and architecture, gingiva width attached, tooth mobility, root structure, and tooth position, are taken into account when choosing abutment teeth.

· Using cause-related therapy in conjunction with surgical

therapy to remove pockets to control or eradicate periodontal disease.

· Throughout therapy and in between times, periodontal maintenance and encouragement for good oral hygiene should be provided.21

**CAUSE-RELATED THERAPY:**

It is possible to cure food impaction, rectify occlusion-related damage, remove calculus, remove any insufficient dental restorations from the gingival environment, move teeth in orthodontics, encourage good oral hygiene, and extract teeth that are inoperable.

**SURGICAL THERAPY:**

· To obtain access for debridement, to decrease pockets, and for periodontal regeneration therapy, periodontal flap surgery can be required [Figure 1].

· Removal of gingival excess and preservation of biologic width: When a tooth's short clinical crown is judged insufficient to support the retention of a necessary cast restoration, periodontal surgical operations must be performed to enlarge the clinical crown [Figure 2].

· Where oral hygiene is complicated by a shallow vestibule, a vestibuloplasty may be necessary. Gain in associated gingiva is also facilitated by correcting a shallow vestibule. Vestibuloplasty via fenestration of the periosteum. Eliminating strain on the marginal gingiva in the vicinity of a frenum and improving vestibular depth and attached gingiva are the benefits of removing aberrant frena.[Picture 3].

FIGURE 1: Periodontal Flap Surgery procedure

FIGURE 2: Crown lengthening with osteoplasty done for unesthetic gingival margins and reduced height of clinical crown.

FIGURE 3: Vestibuloplasty with periosteal fenestration for treatment of shallow vestibule .

**CONCLUSION**

The modern periodontist and restorative dentist must work together to implement an integrated strategy. A satisfactory outcome is achieved by careful consideration of the hard and soft tissues around tooth and implants before to, during, and following restorative procedures. Additionally, the patient receives the advantage of receiving precise, long-lasting repairs together with comprehensive treatment.

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Review Article

# ROLE OF THIRD MOLARS IN LATE ANTERIOR CROWDING.

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## ABSTRACT:

To evaluate the role of third molars in the development of crowding or relapse after orthodontic treatment in the anterior segment of the dental arch. The role of third molars in causing late mandibular incisor crowding is controversial. Various studies have been conducted to evaluate their relationship. The aetiology and role of the third molars in mandibular incisors crowding is still unclear. The purpose of this article is to review the evidence regarding the role of third molars in late lower incisor crowding, find out the cause and effect relationship between them, and to evaluate the justification of prophylactic extraction of third molars.

***Keywords :*** Third Molar, Crowding, Mandibular Anteriiors, Late Anterior crowding

## INTRODUCTION:

In orthodontics, the most controversial role of the third molars is whether they can contribute to the development of malocclusion or relapse after orthodontic treatment, particularly in the anterior segment of the dental arch[1]. The aetiology and role of the third molars in mandibular incisor crowding is still unclear. The claim that mandibular third molars are the cause of this crowding is certainly controversial and debated. On the other hand, it cannot be categorically denied that third molars play some role in this process[2].

Many studies found evidence that third molars influence mandibular incisor crowding, but on the other hand, some authors state that there is no relation between these teeth and anterior crowding relapse[3,4,5]. Many studies found evidence that third molars influence mandibular incisor crowding.

There is some evidence to support the theory that late lower arch crowding is caused by pressure from the back of the arch. Whether this pressure results from a developing third molar, physiologic mesial drift, or the anterior component of force derived from the forces of occlusion on mesially inclined teeth is not clear[6]. Mild crowding of the incisors tends to develop in well aligned arches, or it increases if mild crowding is already present. Increased crowding of mandibular incisors takes place at about the time of third molar eruption. Although the mean age for third molar eruption is 20 years, mandibular anterior crowding continues well beyond the eruption of third molars in both untreated and treated individuals[7].

Although there is a multifactor basis for late lower incisor crowding, the third molars are extracted on a prophylactic basis in most of the subjects to prevent late lower incisor crowding[7].

The purpose of this article is to review the evidence regarding the role of third molars in late lower incisor crowding, find out the cause and effect relationship between them, and to evaluate the justification of prophylactic extraction of third molars[7].

## CHANGES IN THE MANDIBULAR ARCH WITH AGE

Crowding does not increase in a linear fashion with time. Most of the changes occur in late teens or early twenties. Late crowding is observed in both untreated and orthodontically treated subjects.

## CHANGES IN THE MANDIBULAR ARCH IN UNTREATED SUBJECT

In untreated arches, an increase in crowding between the ages of 12-13 years and 17- 18 years has been reported by Siatowsky,1974; Sakuda et.al. 1976; Morres et.al. 1979; Richardson 1979; Sampson et. aI.1 983; Brown and Daugaard-Jensen 1951, between 12 - 21 years.

Richardson (1982) examined the changes in crowding during five years following eruption of all permanent teeth anterior to the third molars and found a tendency toward increased crowding[8].

## CHANGES IN LOWER INCISORS IN ORTHODONTICALLY TREATED PATIENTS

Long-term studies have indicated that the severity of crowding increases during adolescence to adulthood in both normal, untreated subjects and also in orthodontically treated patients after retention is discontinued.

The results of long-term longitudinal studies have shown continuing decrease in arch length, width and increase in incisor crowding with age.

## ETIOLOGY OF LATE LOWER ARCH CROWDING

Pressure from the posterior of arch

a) Physiologic mesial drift.

b) The anterior component of forces of occlusion on mesially inclined teeth.

c) Mesial vectors of muscle contraction.

d) Presence of developing third molars.

## PRESSURE FROM THIRD MOLAR

In most individuals, the third molars are impacted because of lack of space. Late crowding develops at about the time of the third molar eruption. The erupting teeth produce pressure that leads to late crowding.

The presence of impacted third molars at the distal end of the lower arch wouId prevent the posterior teeth from shifting distally and their presence would guarantee that crowding would develop. This indicates a passive role of third molars in late incisor crowding[9].

Anterior component of force: The primary interest surrounding ACF is because of its possible role in causing mesial migration of teeth and subsequent dental malalignment. The axial inclination of permanent teeth is such that the forces of mastication produce a mesial resultant through the contact points of the teeth, the anterior component of force. ACF is thought to result from the axial inclination of the posterior teeth, which causes these teeth to tip forward during occlusal loading. This tipping force is subsequently transmitted to more anterior teeth through inter-proximal contacts. The tendency for the teeth to move forward as a result of occlusal forces varies greatly according to the angulations of the teeth with respect to each other and especially affected by the steepness of the occlusal plane.

## STUDIES RELATING THIRD MOLARS TO LATE CROWDING

Bergstrom and Jensen (1961)[10] carried out a cross sectional study on 60 dental students of whom 30 had unilateral agenesis is of upper third molars, 27 had agenesis of lower third molars, and had one third molar absent or lost. They measured the space conditions and midline displacement on both sides of the plaster casts of those students. The results suggested more crowding in the quadrant with third molar present than in the quadrant with third molar missing.

Mesial displacement of lateral segments was found on the side with third molar in mandibular arch but not in maxilla. No correlation between age and the degree of crowding or mesial displacement was found. They observed that the unilateral presence of third molar did not seem to have an effect on the midline. They concluded that the presence of third molar appeared to exert some influence on the development of the dental arch but not to the extent that would justify either the removal of tooth germ, or the extraction of third molar, other than in exceptional cases.

Vego (1962)[11] conducted a longitudinal study on 40 cases with lower third molar present and 27 cases with congenital absence of both lower third molars, in untreated arches. The first measurement of arch perimeter was made after the eruption of second molar approximately 13 years average and second measurement was made at average of 19 years. The result of this study suggested that there was significantly greater degree of crowding in the group with lower third molar. He concluded that the erupting third molar could exert a force on approximating teeth. In both groups, arch perimeter loss was observed and some cases without lower third molar, showed an increase in severity of rotated or malaligned teeth. Therefore he suggested that there are multiple factors involved in the crowding of an arch.

Selmer-Olsen's study (1970) suggested that in people with unilateral congenital absence of third molar, there was less crowding on that side of the arch without third molar than on the other side with third molar.

## STUDIES INDICATING A LACK OF CORRELATION BETWEEN THIRD MOLAR AND LATE CROWDING

Shanley (1962)[12] in a small cross-sectional study, compared lower incisor crowding and procumbency in three groups of subjects with bilaterally impacted, erupted or congenitally absent third molar. He found no significant differences and concluded that third molars have little influence on crowding or procumbency of lower incisors.

Buschang P H and Shulman (2003)[13] conducted a study on the prevalence of lower incisors crowding in untreated persons in the age group of 15-50 years. A random sample of 9044 individuals was used. They concluded that erupted third molars were not associated with crowding and significant increase in crowding took place during adulthood.

## DISCUSSION:

Bergstrom and Jensen's study (1961) suggested a positive role of the third molars in late crowding.

Vego (1962) noted that the erupting third molars could exert a force on the adjacent teeth. He observed late crowding in subjects with congenitally missing molars. Therefore, he suggested that there were multiple factors involved in the crowding of lower arch.

Schulhof RJ (1970) compared Vego and Kaplan's work. According to him, if different statistical tests were applied in Kaplan's study, their findings would support Vego's conclusions. He reached at a conclusion that the third molars were a factor in late incisor crowding.

Woodside DG (1970) postulated that in the absence of third molar, there is distal settling of the whole mandibular dentition during the growth period and the presence of third molar would prevent distal settling.

Lindqvist and Thailander (1982) were in favour of the opinion that the third molars cause late crowding in some individuals.

Richardson ME (1989) conducted the Belfast third molar study that is in support of the pressure from behind theory. She examined 51 subjects (22 females and 29 males) with intact lower arches and bilateral third molars present, in the age group of 13 and 18 years. These cases showed more than 1 mm increase in crowding on each side. In some quadrants, the increase in crowding was 4mm and only 16% of arches did not show increased crowding. Mesial inclination of the lower canines is usually considered to be a sign that the buccal segment has moved forward. Three cases showed a distinct mesial inclination and increased lower incisor crowding during the observation period. She considered third molars as one of the causes of late lower arch crowding.

## CONSENSUS DEVELOPMENT ON REMOVAL OF THIRD MOLARS

Crowding of the lower incisors is a multifactorial phenomenon that involves a decrease in arch length, tooth size, shape and relationship, narrowing of inter-canine dimension, retrusion of incisors, and growth changes occurring in adolescence. Therefore, it was agreed that there is little rationale based on the available evidence for the extraction of third molars solely to minimize present or future crowding of the lower incisors. If adequate room is available for third molar eruption, every effort should be made to bring these teeth into functional occlusion.

Orthodontic therapy, in both maxillary and mandibular arches, may require posterior movement of both first and second molars by either tipping or translation, which can result in impaction of third molars. To avoid impacting third molars and to facilitate retraction, it may be deemed advisable in some cases to remove third molars before starting retraction procedure.

## CURRENT TRENDS FOR THIRD MOLAR EXTRACTIONS

The third molars are routinely removed for three reasons:

1. All impacted third molars are potentially pathogenic therefore prophylactic removal should be done to eliminate the risk.
2. The presence of third molar can cause late incisor crowding.
3. Removal during adolescence and young adulthood reduces the risk of operative and postoperative complications in older patients.

## CLINICAL IMPLICATIONS:

The relationship between mandibular third molars and mandibular incisor crowding relapse has always been controversial in orthodontics and dentistry in general. Several professionals attribute the cause of this relapse to the presence of the mandibular third molar. Often, prophylactic extraction of the third molar was indicated, leading to the belief that the relapse would be decreased and/or avoided.

The results of the present study elucidated that there is no relationship between the relapse of mandibular incisors crowding

and the presence of mandibular third molars. In this way, we can suggest that prophylactic removal indication of the third molars for purposes of avoiding mandibular incisors crowding is not justified.

## CONCLUSION:

Long-term studies in untreated individuals do not suggest evidence of a cause and effect relationship between third molars and late mandibular incisor crowding.

Asymptomatic and pathology-free third molars shouId not be extracted to prevent late lower crowding in untreated individuals.

Presence or absence of mandibular third molars did not influence the relapse of mandibular anterior crowding in orthodontically treated patients.

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Review Article

# ROLE OF CURCUMIN IN MANAGEMENT OF ALVEOLAR OSTEITIS :A REVIEW ARTICLE

*Dr. Manisha Solanki , Dr. Kishan Kumar , Dr. Harish Vaishnav , Dr. Shweta Nehe*

## ABSTRACT

This is a systemic review which shows the comprehensive use of curcumin in treatment of alveolar osteitis .The most common complication after tooth extraction is dry socket. Plants & their extracts have immense potential for the management or treatment of the wounds. Turmeric commonly is called as Haldi in Hindi. C Longa has been reported to possess anti bacterial, anti fungal & anti inflammatory activities. This act as anti inflammatory agent to treat different kind of diseases & health problems. The main aim of this review article is to provide knowledge and clinical management of the dry socket. It also depicts the etiology of dry socket like intraoperative trauma, lack of operaters experience, smoking, oral contraceptives, age, etc. Various treatment methods are discussed along with the use of turmeric like chlorhexidine mouthwash 0.2%, warm saline rinses, use of antibiotics, steriods, anti fibrinolytics, low level laser therapy.

***Keywords*** : Alveolar osteitis, Dry Socket, Curcumin, healing

## INTRODUCTION

Dry socket ,also known as alveolar osteitis is a painful condition that can occur after the extraction of a tooth .it occur when the blood clot that normally forms in the socket after a tooth extraction is dislodged or dissolves, leaving the underlying bone exposed. Alveolar osteitis also called dry socket is the most common post extraction complication of teeth, most commonly occurring in 40-45 years of age.2.severe type of pain usually starts due to extraction of tooth after 2 to 3 days. It has been seen that prevalance of dry socket is 0% to 35%. Turmeric possesses certain properties that might be beneficial in managing the condition.

## 1. ANTI -INFLAMATORY PROPERTIES:

Turmeric contains curcumin, a compound with well-established anti-inflammatory properties[1]. Inflammation is a key component of the pain and discomfort associated with dry socket, and turmeric may help reduce this inflammation. IT also contribute in analgesic effect.

## 2. ANTI-MICROBIAL EFFECT::

Turmeric has been found to have antimicrobial properties. In the context of dry socket, preventing infection is crucial for proper healing. Turmeric may help inhibit the growth of bacteria in the affected area.

## METHODS :

The authors of the present article surveyed the literature available on Curcumina and tried to critically evaluate the scientific data.the author collected data from various sources for example ,Scopus ,Google scholar ,Pubmed ,Various Articles on Curcumina available on GOOGLE . The editors feel that this is a very welcome way to initiate scientific research on medicinal plants and active principles. this article can be used as evidence that medicinal plants will have a scientific background and can be used to certain extent. It can compete with drugs of Synthetic origin.

Comprehensive reviews of the proposed causes of dry socket lesions and of the factors that correlate with increased dry socket incidence can be found in the literature [1,2,5,6,7,8,9]. One hypothesis is that bacteria initiate dry socket lesions or prolong their duration [1,2,5,6,7,8,9,10]. However, there is little evidence that antibiotics given after an extraction reduce dry socket .chlorhexidine placed in socket after extraction does not show any significant decrease in dry socket case.however one meta analysis show use of antibiotic before extraction shows significant decrease in dry socket case 16.

## PATHOPHYSIOLOGY:

Birn observed high concentrations of plasmin and increased fibrinolytic activity in the alveolar bone lining dry socket lesions [6,9]. Plasminogen, the precursor of plasmin, circulates in the blood and binds to clots at wound sites. Various tissue activators, including tissue-type and urokase-type plasminogen activators [20,21] convert plasminogen to plasmin [6,20,21,22]. Plasmin is experimentally identified as an important molecule for inducing inflammation [20,22,23,24] because plasminogen cause fibrinolysis to dissolve blood vessel clots, increase local capillary permeability, and attract inflammatory cells and its complements to wound sites.

Birn hypothesized that trauma during an extraction or the presence of a bacterial infection somehow facilitates the release of plasminogen tissue activators in the post-extraction socket,

resulting in the plasmin induction of fibrinolysis that dislodges the blood clot that formed after the extraction and causing a dry socket lesion [6,9]. However, although it is found a correlation between the presence of fibrinolytic activity in extraction sockets and dry socket lesion pathogenesis, fibrinolysis may not be the cause dry socket lesions. Since fibrinolysis also increases capillary blood flow to the extraction socket, it might actually reduce the probability of dry socket lesion formation [25,26,27,28]. Dry socket lesions routinely exhibit an eventual stoppage of blood flow to the socket. This idiopathic ischemia counteracts the effect of fibrinolysis and is presumably a cause of dry socket lesion initiation and pathogenesis.

In a high-stress extraction, that puts high compressive forces on alveolar bone surrounding the tooth, events are initiated that will cause, over a 24- to 96-hour period following the extraction, the necrosis of osteoblasts lining the intaglio surface of the socket. The necrosis of the osteoblasts may initiate fibrinolytic activity that lyses any blood clot that may have formed after the extraction, or the blood clot may dislodge because the necrotic osteoblasts lose the ability to metabolically integrate with the blood clot. Also, approximately at the time of osteoblast necrosis, the socket stops bleeding, even though the fibrinolytic activity should theoretically cause increased bleeding to the extraction socket to bring immune cells and complements to the socket to begin resorbing the necrotic osteoblasts. This idiopathic socket ischemia event may prevent an initial blood clot to reform through additional bleeding and may prevent the immune system from accessing the site through local capillaries to initiate an inflammatory response to resorb the necrotic bone cells. The necrotic bone cells are then exposed and uncovered for several days, resulting in the major symptom (or morbidity) of dry socket lesions, acute pain of the exposed socket to mechanical stimulation that lingers for several days until the bone becomes completely covered by healing epithelium.

During a traumatic extraction, heavy luxation or forceps forces transfer to the jawbone surrounding the roots and may crush bone on the intaglio surface of the extraction socket[1,10,29]. This can cause necrosis or apoptosis of osteoblasts within the extraction socket [30,31,32]. Studies have shown that mechanical stress on osteoblasts can activate cellular signaling pathways that lead to osteoblast apoptosis [30,31,32,33]. Also, the percentage of apoptotic osteoblasts increases over 24 hours after the initial compressive force application30 and increases in proportion to the compressive force (30,33).

The necrosis of bone cells, occurring over a >24-hour delay period after an extraction, may result in the bone cells releasing urokinase plasminogen tissue activator, which is the main plasminogen activator released in dry socket lesions. The urokinase plasminogen tissue activator then converts plasminogen to plasmin. The plasmin may directly result in the lysis of a blood clot that initially formed in the socket. However, a major function of plasmin is to initiate blood vessel perfusion to bring blood, immune system cells, and complements to the intaglio surface of the socket to begin resorbing the necrotic osteoblasts. In dry socket lesions, however, an idiopathic blood vessel ischemia event is eventually observed that prematurely blocks this capillary perfusion-mediated immune system activation process.

The cause of ischemia at a dry socket lesion site is unknown. Theoretically, the high forces of the extraction may crush and occlude blood vessels within the bone forming the intaglio surface of the socket (although there is no experimental evidence for or against compression-induced blood vessel occlusion existing in dry socket lesions). Some socket bone may be dense, with few blood vessels per unit of socket area, or a socket may be observed to only bleed from the apical aspect, making these sockets intrinsically incapable of significant bleeding. Smoking or oral contraceptive use may also reduce systemic blood circulation [17,18]. the pro-bleeding effect of plasminolysis may be counteracted chemically by pro-ischemia thrombin activity 34 at the dry socket wound site.

Due to the lack of blood flow to the intaglio surface of the socket, the immune system cells and their complement factors cannot be brought to the intaglio surface of the socket to resorb the necrotic bone cells lining the socket. Instead, clinical observation seems to

show that the socket heals by a mechanism where vital epithelium, initially present at the outer perimeter of the socket, grows gradually from the outer perimeter of the socket inferiorly into the socket down to the apex of the socket. As the vital epithelium gradually covers the surface area of the socket intaglio surface, the epithelium brings blood vessels, immune system cells, and their complements in direct contact with the necrotic bone cells of the socket to begin resorbing the necrotic bone cells. This process of epithelium growth may take several days; during this time, the uncovered bone is painful to the touch and is vulnerable to painful contact with bacterial biofilm or food impaction.

This model of dry socket pathogenesis and healing implies that inflammation does not fundamentally cause dry socket lesions and is not the cause of dry socket morbidity because ischemia will prevent an inflammatory event from occurring at the dry socket lesion site. Therefore, this model questions the use of terminology such as "alveolar osteitis," or "fibrinolytic osteitis," or any other term using the inflammation suffix "-itis" to describe dry socket lesions. Instead, the it is suggests an alternative terminology for the dry socket phenomenon: "post-extraction peri-alveolar exposed-bone ostealgia syndrome."

## RISK FACTORS:

There is evidence that reduced post-extraction socket blood flow facilitates dry socket lesion formation. Smoking [17,18] and use of oral contraceptives [18] both facilitate blood clotting throughout the body [35] and may reduce blood circulation into the extraction socket. Both smoking and use of oral contraceptives cause increased incidence of dry socket lesions [2].

Traumatic extractions correlate with dry socket lesion incidence [19]. The incidence of dry socket lesions is lower for non-surgical extractions (that do not require tooth sectioning) compared to surgical extractions [15,18,36,37]. This is due to a correlation between the need to section a tooth and the need for heavy luxation forces to remove a tooth or individual sroots.

The highest rate of dry socket incidence among all teeth types occurs with the extraction of mandibular third molars. Mandibular third molars are often deeply embedded in dense bone and have the highest incidence of root dilacerations among teeth [38,39,40]. Mandibular third molars may have roots that are not radially co-axial with the imaginary radial axis on which the operatory clinician places luxation forces to remove the root, especially if difficult access limits the number of possible ways of positioning luxation instruments. These factors may obligate a clinician to use heavy forceps or luxation forces, even after root sectioning, to extract mandibular third molars, and these heavy forces may transmit to the surrounding jawbone.

The incidence of dry socket lesion formation is lower with maxillary third molar extractions compared to mandibular third molar extractions. Maxillary third molars often have conical roots embedded in cancellous bone bounded by thin buccal bone, requiring less force for removal. Extracting teeth that are in cancellous bone may result in multiple sharp points of cancellous bone severing multiple blood vessels, which may ensure bleeding into the post-extraction socket and blood clot formation.

Microorganisms' role in the Alveolar Ostetis development:

A study was conducted to observe the effect of infection induced experimentally, Fusobacterium nucleatum, Prevotella melaninogenica, Streptococcus anginosus, Streptococcus sanguis and Treponema socranskii were present in the inoculation material. This experiment was conducted in the sockets of rats and it showed that there was a higher level of serum C reactive protein along with this it also showed the potential of infection propagation and disturbance in the repairing process of alveolar Osteitis . It was a valuable experimental model for studying the stages and processes of alveolitis. Another experiment was conducted and it reported that process of healing in certain patients can be delayed in some cases because the sites in the patients were effected by osteomyelitis previously .

## CURCUMIN AS TREATMENT MODALITY:

Turmeric (Curcuma longa L.) is plant species belonging to the ginger family (Zingiberaceae) and has been used throughout history as a dietary spice and coloring agent in Indian and Chinese cuisines [3]. Together with quercetin and resveratrol, curcumin is

among the most studied natural products [2]. The paste of curcumin mixed with lime has been a popular home remedy for the treatment of inflammation and wounds . Recently, curcumin has been extensively studied for its application as an anticancer, antinociceptive, antiinflammatory, antiaging and wound-healing agent and showed beneficial effects in the treatment of chronic diseases such as diabetes type II, rheumatoid arthritis, multiple sclerosis, Alzheimer's disease and atherosclerosis [5]. Enhancement of cutaneous wound healing involves tissue remodeling, granulation, new tissue formation and collagen deposition . Various studies have shown that the application of curcumin on wounds also enhances epithelial regeneration and increases fibroblast proliferation and vascular density[6].

Turmeric is an amazing natural herbal with healing properties. It has been used as traditional remedy in ayurvedic medicine for thousands of years. it has powerful anti oxidant & anti inflammatory properties [8,9,10]Turmeric has many components but the one seems getting attention is curcumin. Curcumin is a yellow pigment present in the spice turmeric (curcuma Longa) & has been anti oxidant, anti inflammatory,antiprolifeartive,anti diabetic,anticancer,anti viral,& anti Rheumatic effects.

In India & Asia this native traditional herb is called holy powder because of its anti inflammatory properties to treat different kinds of diseases & health problems, digestive difficulties, treatment of infections & wounds. It is only soluble in fat, so curcumin is best to combine with fats, coconut milk, ghee, butter, oils etc.

Inflammatory Phase

Curcumin reduces the production of the pro-inflammatorymediators - IL-1, and TNF-α which in turn reduces inflammation by reducing the prolonged activity of Macrophages and Monocytes. Curcumin brings about reduction in synthesis of Matrix Metalloproteinase 2 and 7 and reducing inflammation-mediated matrix destruction.8

## PROLIFERATIVE PHASE:

Curcumin enhances the production of granulation tissue and neovascularisation, by increased hydroxyproline concentration, which in turn indicates increased collagen synthesis in an organised manner.

## WOUND CONTRACTION PHASE

Curcumin increases aggregation of Myofibroblasts and accelerates conversion of the already existing fibroblasts into Myofibroblasts, which through Actin-protein mediated activity, leads to deposition on the edges of the wound.[9]

## REMODELLING PHASE

Curcumin enhance the production of the anti-oxidant molecules, Superoxide Dismutase and Catalase. curcumin has been shown to cause Apoptosis of wasted and unwanted cells at the site of the healing wound.[9,23].

## CONCLUSION:

This article described different aspects related to dry socket lesions, summarized and reviewed the proposed causes of dry socket lesions, described the therapeutic effects of curcumin. More evidence is needed to prove the scientific validity of of dry socket lesion treatment and to determine which factors cause dry socket lesions.

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Review Article

# CARE DURING AND AFTER ORTHODONTIC TREATMENT FOR WHITE SPOT LESIONS : AN OVER VIEW

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**ABSTRACT :**

Enamel decalcifications in the form of white spot lesions is a common negative sequelae of orthodontic treatment in the absence of proper oral hygiene. They appear as small lines along the bracket periphery and in a few patients as large decalcifications with or without cavitations. The presence of white spot lesions after removal of orthodontic appliances is a discouraging finding to a specialty whose goal is to improve facial and dental esthetics. This article examines the prevalence, distribution and formation of white spots after orthodontic treatment and reviews their prevention and management in the post orthodontic phase.

***Keywords :*** Enamel, Decalcification, White spot lesion, Management preventation, Orthodontic treatment

## INTRODUCTION:

Enamel decalcification or white spot lesion (WSL) development of the enamel surface is the most important iatrogenic effect of fixed orthodontic appliance therapy[1]. Orthodontic treatment with multibanded appliance imposes a significant risk for development of WSL. Bands and brackets increase the retention of plaque and food on smooth tooth surfaces that encourages the formation of white spot lesions. Despite intensive efforts to educate patients about effective oral hygiene procedures, enamel demineralization associated with fixed orthodontic appliances remains a significant clinical problem[2]. A review of literature showed 2% to [9]7%, of WSL prevalence associated with orthodontic treatment[3-5]

## WHITE SPOT LESIONS :

The WSL has been defined as "subsurface enamel porosity from carious demineralization" that presents itself as "a milky white opacity when located on smooth surfaces"[6]. In general, orthodontic patients have significantly more WSLs than non orthodontic patients, and these WSLs may present esthetic problems years after treatment[7]. The literature shows no clear attempt to precisely assess and measure the extent or surface area of such lesions on affected teeth. These studies relied mostly on direct visual scoring. Precise localization of white lesions and their extent on different quadrants in different tooth groups has not been addressed in the literature.

## PREVENTION AND MANAGEMENT OF WHITE SPOT LESIONS:

"CARE DURING ORTHODONTIC TREATMENT" :

## ORAL HYGIENE :

The most important prophylactic measure to prevent the occurrence of WSLs in orthodontic patients is implementing a good oral hygiene regimen. Good oral hygiene is thus more important in orthodontic patients treated with fixed appliances than in non treated individuals[2]

## FLUORIDE TOOTHPASTES :

As orthodontic patients are at an increased caries risk, appropriate level of fluoride ions is needed to provide an anticaries benefit by promoting enamel remineralization. So for orthodontic patients fluoride concentration below 0.1% in dentifrices is not recommended[8]. This is because when fluoride ions are incorporated into the surface of enamel, a fluoroapatite crystal structure is formed that has a lower solubility in the oral environment compared with hydroxyapatite. Fluoride toothpastes containing either sodium fluoride, monofluorophosphate, stannous fluoride or a combination of these compounds are recommended.

## FLUORIDE VARNISH :

Since fixed orthodontic appliances induce a high cariogenic challenge, there is a need for more continuous fluoride supplementation independent of patient cooperation. Therefore, some topical fluoride in the forms of varnishes, solutions, or gels may be recommended. The use of fluoride varnishes has proven to be a feasible and safe method of fluoride application. Advantages of the fluoride varnish over other topical fluoride regimens include providing fluoride protection of enamel despite patient noncompliance and delivering the fluoride in a sustained manner over a longer period of time. It has been reported that the application of a fluoride varnish resulted in a 44.3% reduction in

enamel demineralization in orthodontic patients[9].

## RECENT ADVANCES :

SEALANTS AND ADHESIVES : In general, the duration of orthodontic treatment makes the patient an increased caries risk for a prolonged period of time. As a result, continuous fluoride release from the bonding system around the bracket base would be extremely beneficial. Glass ionomer cements (GICs) were used as orthodontic bonding adhesives to take advantage of their chemical bonding to tooth structure and sustained fluoride release following bonding. In an attempt to increase the bond strengths of GICs, resin particles were added to create resin modified GIC (RMGI) bonding systems. These adhesives release fluoride like conventional GICs but also have higher bond strengths[10]. It was found that light- cured pit and fissure sealants placed on the labial surface adjacent to bonded orthodontic brackets were 80% effective in preventing demineralization in vitro and required no patient compliance[11]

**ANTIMICROBIAL AGENTS :** Chlorhexidine is one of the most widely used broad-spectrum antimicrobial agents in dentistry. It has proven to be very effective in the maintenance of plaque control and gingivitis both in the short term and long term studies without developing resistant organisms. Combining chlorhexidene with the bonding primer or applying it after bonding is completed resulted in no significant decrease in shear bond strength and induced antiplaque benefits. More recently, the use of another antimicrobial, cetylpyridinim chloride (CTC), shown to inhibit bacterial growth[12].

## "CARE AFTER ORTHODONTIC TREATMENT" :

The treatment ends when the planned result has been achieved. After the removal of the brackets, not much is known about the treatment and healing of WSLs. Although the role of saliva in the physiological regression of the WSLs is not to be ignored, many of the lesions remain stable[13]. Often the first approach to eliminate WSLs is remineralization. There are several professionally and home applied products in different forms: solutions, varnishes, cream pastes and chewing gums for topical remineralization treatment. They all contain fluorides and/or casein phosphopeptideamorphous calcium phosphate, with evidence for varying degrees of success to be found in the dental litera- Ture[14]. Remineralization procedures require following strict oral hygiene measures, repeated multiple applications, a treatment plan that could take a long period of time and first of all, the compliance of a motivated patient. After debonding and using a strict protocol for remineralization, the lesion progression is usually limited with persistence of the WSLs, leading to aesthetic impairment. Typically, if the lesion is deep, only the superficial layer is remineralized, leaving the porous body of the lesion reflecting its white colour from below. Further, if the porous lesion is stained by discolouring agents introduced into the oral cavity and the remineralization treatment does not resolve the problem, tooth whitening could be used, but will require retreatment in time[15].

In one of the first clinical trials of CPP- ACP cream used specifically for treatment of postorthodontic WSLs, Bailey et al.[16] reported that use of CPP-ACP cream enhanced the regression of WSLs compared with a placebo. However, more recent clinical investigations show less promising results. In a prospective, randomized, and blind clinical study, Beerens et al.[17] compared a fluoride-containing CPP- ACP paste with a control paste in 54 subjects. After a 3-month treatment period, they found no advantage in the use of the fluoridated CPP- ACP paste over regular oral hygiene in WSLs regression as measured by Quantitative Light- induced Fluorescence. Similarly, Brö̈chner et al.[18], in a prospective clinical trial using non- fluoridated CPP-ACP paste, found WSL regression to be comparable with traditional tooth- paste after a 4-week treatment period.

The Orthodontist should then carry out a careful examination of the entire mouth to diagnose and treat: any proximal caries; any caries that have formed under the molar bands and in areas where brushing between the brackets and the gingival festoon has been deficient. Traces of demineralization, which cannot be foreseen,

are often discovered at the end of treatment, requiring continued preventive fluoride treatment. In this case it is important to make topi- cal applications of fluorides in a solution, gel or varnish to facilitate surface remineralization of incipient carious lesions[19,20]. Another study concerning remineralization with fluoride after removal of orthodontic devices has shown that the use of a fluoride toothpaste twice a day leads to remineralization after 2 months, and combining fluoride toothpaste and fluoride gels speeds up remineralization by 1 month[21].

## CONCLUSIONS :

WSLs are one of the common complications of fixed orthodontic treatment. The responsibility of an orthodontist is to minimize the risk of the patient having decalci- fication as a consequence of orthodontic treatment by educating and motivating the patients for excellent oral hygiene practice.

Prophylaxis with topical fluoride application should be implemented: high-fluoride tooth- pastes, fluoride mouthwashes, gels and varnishes during and after the orthodontic treatment, especially for patients at high risk of caries.

Enamel decalcifications in the form of white spot lesions is a common negative sequelae of fixed orthodontic appliance therapy. Brackets, bands, arch wires, ligatures, and other orthodontic device increase the retention of plaque and food on smooth tooth surfaces that encourages the formation of white spot lesions. It is therefore of great importance to evaluate the oral hygiene status of patients during the initial months of orthodontic treatment and, if necessary, to implement preventive measures immediately to prevent demineralization.

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**Acknowledgments:** Those who have helped the authors carry out the study and/or prepared the manuscripts but have not made significant intellectual contribution to deserve authorship must be acknowledged. Mention all applicable grants and other funding that supports the work.

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