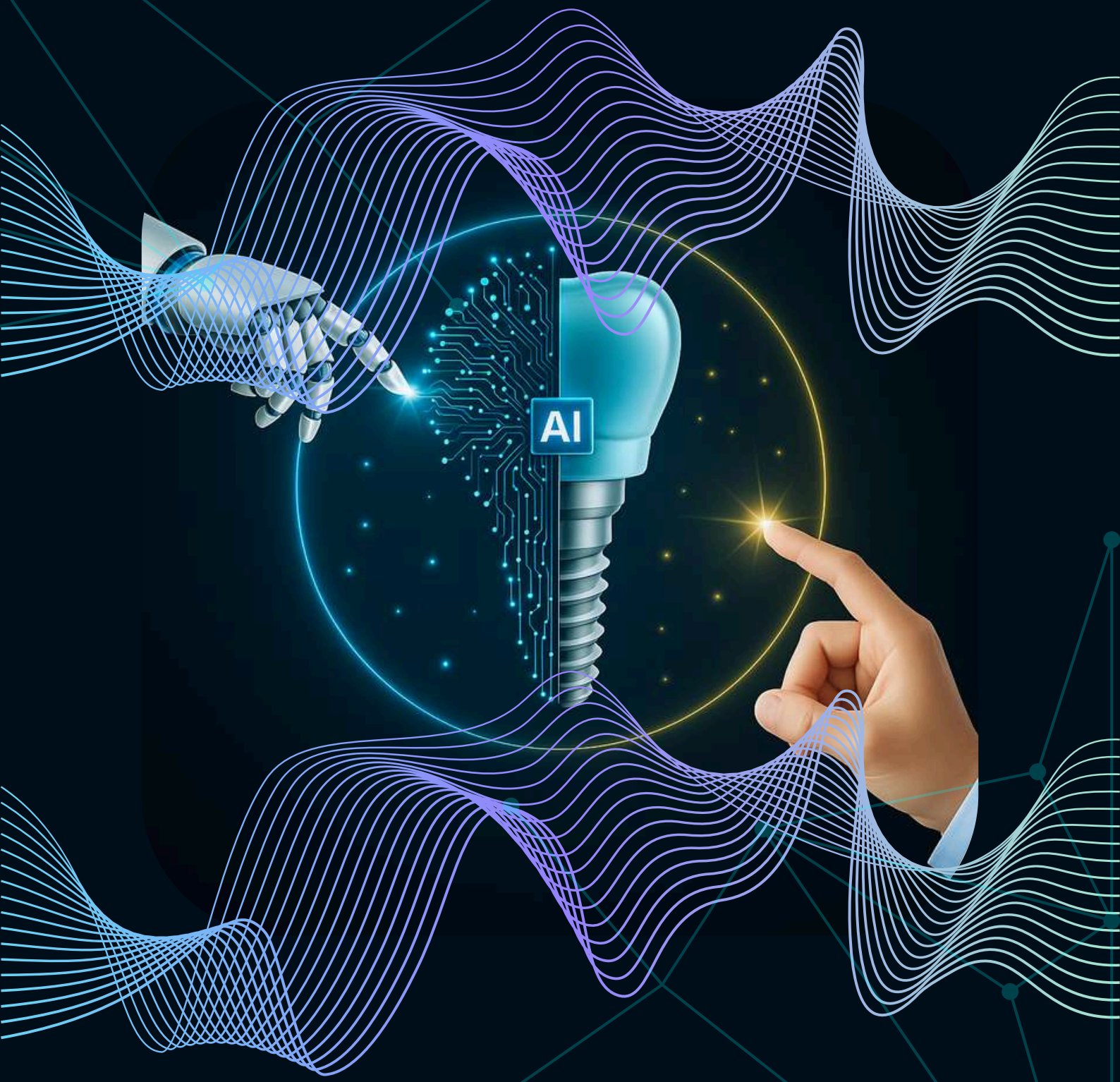
TAPER



VOLUME 9 ISSUE 1 APRIL 2025
JOURNAL OF INDIAN DENTAL ASSOCIATION
THIRUVALLA

TAPER

JOURNAL OF INDIAN DENTAL ASSOCIATION, THIRUVALLA

COVER AND DESIGN : DR SANDRA ARUN

IDA THIRUVALLA

Since its inception about 17 years ago on 7th December 2008, IDA Thiruvalla has risen to prominence impressively under visionary leadership and has made a mark at the National and State levels, coveting a multitude of awards including the State and National Award for the Best Local Branch.

As a branch we have been successful in having a steady membership growth, with annual members from as far as Trivandrum, Adoor, Enath, Pathanamthitta and from all corners of the world, who actively participate in the online and offline programs whenever feasible. The branch is an eclectic mix of brilliant and experienced members along with fresh talented youngsters that is conducive to overall growth of the branch.

IDA Thiruvalla is proud to have produced many state leaders who have achieved immense recognition and bagged awards at the State and National levels including Best Branch and Best President awards. During its formative years our members have held key positions in the IDA Kerala State Office and HOPE Office and helped it to reach its present state with the sole aim to benefit all IDA members.

In times of adversity our office has swiftly sprung into action for its members, be it during COVID times by providing PPE kits during scarcity, or more recently helping with the CE registration. Always prepared to work for the benefit of the needy in the society, we have been providing financial aid towards medical assistance, scholarships, food kits, school stationary, etc; donated a house, a free dental clinic at a destitute home, a breast feeding kiosk at the local railway station; and even conducted many Awareness Classes and Oral cancer screening and Check-up camps among different target audience-school children, migrant workers, Kudumbasree members, differently-abled kids, senior citizen forums, tribals, etc. Our exclusive CDH highlight programs have been- organising tribal projects at Attathode Tribal Colony for several years and conducting oral hygiene awareness and screening camp for the Transgender community as part of inclusivity, for which our branch was conferred with National Special Recognition Awards.

With the aim to help update and impart knowledge on the latest developments and technologies so as to stay abreast with the current trends in dentistry, our branch continues to come up with innovative CDEs by eminent faculties, Handson trainings from renowned practitioners, webinars, and highly informative journals. It is a matter of pride that IDA Thiruvalla branch still holds the record of organising the CDE with the highest number of participants in the nation, around 1400 plus attendees, during the State CDE back in 2010.

Our Journal, TAPER, was once again adjudged as the "Best Local Branch Journal" in 2024 at the National level, and we sincerely hope that the present edition upholds and conforms to the high standards set in the preceding years.

Happy Reading!

INDIAN DENTAL ASSOCIATION
Thiruvalla Branch

Team Of Office Bearers - 2025

Dr. Maya Mathai
President
8547620052

Dr. Aswin M Ravi
President Elect
7025189195

Dr. Sunil Roy Koshy
Immediate Past President
9447200778

Dr Reji Thomas
Vice President & C C Member
9447066543

Dr. Thomas Jacob
Vice President & Rep. to State
8848068396

Dr. Seema Joseph
Hon. Secretary
9961193155

Dr. Saju Philip
Asst. Secretary
9447860877

Dr. Saji N Cherian
Joint Secretary & Co-ordinator Project Suraksha
9447895584

Dr. Roji Kurian
Treasurer
8606214851

Dr. Rajeev Simon K.
CDE Representative, Rep. to State & International Tour Co-ordinator
9447244072

Dr. Saji Kurian
CDH Representative & Vice Chairman, IDA HOPE
9847440646

Dr. Prameetha George Ittycheria
Editor Journal
9495080021

Dr. Zubin Cherian
Executive Committee Member
9497075891

Dr. Varun Gopal
Executive Committee Member
7907126258

Dr. Mathews Jude
Executive Committee Member
6282671106

Dr. Dan V. Cherian
Executive Committee Member & Co Convenor Private Practitioner Forum
8547325654

Dr. Akhilesh Prathap
Rep. to State
9946661016

Dr. Abhilash Radhakrishnan
Rep. to State & Cultural Co- ordinator
8075487101

Dr. Samuel K Ninan
Central Council Member & Nominee to District Committee
9447440004

Dr. Lanu Abraham
CDE Chairman, IDA Kerala State
9961550216

Dr. Thomas Eapen
IDA HOPE Representative
9446190291

Dr. Deepthi Santosh
WDC Representative & Co-Convenor IDA Directory
7012996481

Dr. Shibi Mathew V
WDC Representative
9744111724

Dr. Darly James
Nominee to Labour Sub Committee
9961898555

Dr. Tessy Sam Mathew
Representative Image
9349500578

Dr. Elizabeth Tintu Thomas
IDA Store
9495683393

Dr. Annie Beena Thomas
Liaison Officer for CE
9446580715

Dr. Siju Sunny
Sports Co- Ordinator
8129061949

Dr. Sunil Issac
Convenor Private Practitioners Forum
9446208880

Dr. Merlin Thomas
Asst. Editor Journal
9961822510

Dr. Vineetha Anie George
Website In Charge
9447785491

Dr. Miranda George
Academic Co- Ordinator
9920432115

Dr. Simon George
Convenor IDA Directory
9847180197

Dr. Sherine Thomas
Directory Editorial Member & Programmes Co- Ordinator
9995395160

Dr. Daisy Thomas
Directory Editorial Member
9495952966

Dr. Adarsh Ninan Sam
Directory Editorial Member
8606666155

Dr. Biju Thomas
Co- Ordinator Project V CAN
6238143770

Dr. Sharen Sarah Daniel
Social Media Co-Ordinator
8606595188

Dr. Ashley Anna Philip
Relationship Co- Ordinator
7837137199

Dr. Shahina Juvairiya
Convenor Independence Day Video
8547206776

INDIAN DENTAL ASSOCIATION
Thiruvalla Branch

www.idathiruvalla.org ida_thiruvalla_ idathiruvalla

CONTENTS

EDITOR'S MESSAGE

Dear Colleagues,

It is with great enthusiasm that we present the inaugural issue of the IDA Journal—a platform dedicated to advancing dental knowledge, clinical excellence, and professional growth.

As dentistry continues to evolve, staying updated with the latest advancements in procedures, materials, and technology is no longer optional but a necessity. The true hallmark of excellence lies not only in adopting new innovations but also in critically evaluating and integrating them into daily practice. Evidence-based dentistry must serve as our guiding principle, ensuring that each procedure we perform is backed by sound scientific research and clinical validation. Through expert insights, case reports, and research studies, we aim to provide our readers with valuable knowledge that enhances both clinical expertise and patient care.

As we embark on this journey together, I encourage you to actively engage with the journal—share your experiences, contribute your research, and embrace the responsibility of continuous learning. The future of dentistry is shaped by those who seek knowledge and apply it for the betterment of their patients.

We look forward to growing together as a professional community, dedicated to excellence in oral healthcare.

Dr.Prameetha George Ittycheria

Editor

ASSISTANT EDITOR'S MESSAGE

Greetings to all dear IDA Thiruvalla members!

I feel privileged to be part of the release of our first issue of our journal "Taper". At present era it's an absolute breakthrough in the field of dentistry with the arrival of digital technology.

Adopting digital technologies in our day-to-day practice, alter the conventional mode thereby bringing about better patient satisfaction and comfort. There are numerous digital technologies available namely digital impression, CAD for prosthetic restorations, CAM using CNC milling machine, CAM using 3D Printing, CBCT and Guided Implant Software, electronic health records, etc. Introduction of digitalization in practice enhances better communication, improvement in practice, diagnostic capabilities, better patient care and of course reduction in waste and environmental impact.

In this 21st century, I would like to emphasize that we dentists need to evolve our conventional practice to digitalization. Nevertheless, I believe our field is quiet promising with the advent upcoming technologies like artificial intelligence. When properly implemented, it would definitely remain beneficial to dentists, dental technicians and patients.

Dr. Merlin Thomas
Assistant Journal Editor

MESSAGE

Dear Fellow Members,

This IDA year has been so wonderful so far and and all the branches are working hard to take the association to new heights.

I am so happy that IDA Thiruvalla has already hosted excellent events and this journal "TAPER" is yet another feather on the crown.

This journal Taper features latest developments in the field of dentistry and the plethora of activities by the branch. I am sure that this will instill more information to the members and enhance the learning amongst members.

I congratulate entire editorial team for the efforts.

Dr Subash K Madhavan
President
IDA Kerala State

MESSAGE

Here's a wish message:

"Heartiest congratulations to the IDA Thiruvalla team on the launch of the first edition of Journal *Taper*

May this maiden publication mark the beginning of a remarkable journey, fostering knowledge sharing, and promoting excellence in the field of dentistry.

Wishing the editorial team, contributors, and IDA Thiruvalla a resounding success!

Dr Siddharth V Nair
Hon. Secretary
IDA KSB

PRESIDENT'S MESSAGE

Greetings from Ida Thiruvalla

It is with immense pride and joy I extend my warmest congratulations on the release of the first issue of our journal– TAPER.

This year our Motto is "Care, Share, Empower". Our installation ceremony was unique with the presence of IDA National President Dr. Raveendranath and State President Dr. Subhash K. Madhavanand State Secretary Dr. Siddharth V. Nair. We inaugurated two Major Projects – V Can and Suraksha. A detailed Colour photo Directory of our members and an international tour is in the pipe line.

This year we have two of our members in the active role of IDA Kerala State administration. I remember all the past leaders, who have played an important role in the upliftment of our branch. Indian dental Association, Thiruvalla has always been in the forefront since its inception in 2008. We had immensely contributed to the association and profession in many ways including scientific advancements, professional excellence and community service in the past.

The last three months had seen a series of activities. CDE Programmes – A Novel Mandibular Device Therapy for Destructive Sleep Apnea, Level 1 Programme of Projects V Can and Suraksha-Oral Cancer Revisited and Biochemical Insights, State CDE- The Magic of Prevention and Minimally Invasive and Preventive Pediatric Dentistry.. CDH Programmes – Oral Cancer Awareness Poster, Crush to Brush at 3 schools, Tooth fairy Day, Dentist Day Celebration, TRAD- Thiruvalla Run Against Drugs, Awareness Talk on Narcotics and Drug Abuse along with Pushpagiri College of Dental Sciences and Excise Department.

WDC Programmes – Republic Day Contest, National Girl Child Day – AVALKAYI, WDC Charters Day –PIRAVI, Cervical Cancer Awareness video, International Womens day- SAKHI. Cultural and WDC – ARMOUR Valentines Contest. Journal – First Newsletter VIBES. State Cricket Event at Trivandrum. I am extremely grateful to all the coordinators of the programmes for the excellent execution and coordination. Special appreciation to all the members for the grand success of all the programmes.

I extend my sincere gratitude to the editorial team headed by Dr. Prameetha George Ittycheria and Dr.Merlin Thomas and also all the contributors who have dedicated their time and expertise to making this publication a reality.

Warm Regards,
Dr. Maya Mathai
IDA Thiruvalla.

SECRETARY'S MESSAGE

Dear Readers,

Greetings from the Office of IDA Thiruvalla Branch!

“The illiterate of the 21st century will not be those who cannot read and write, but those who cannot learn, unlearn, and relearn.”
Alvin Toffler
In this ever-changing world of science and technology, we need to stay abreast with the latest concepts in the field of dentistry. This Journal is a humble attempt of our branch towards that goal.
Having earned the 2024 Best Journal Award at the National and State Levels, our Journal TAPER has proved time and again with the impeccable standard of articles duly curated for professional enrichment.
We are deeply indebted to our members whose articles have been featured in this issue and acknowledge the laudable efforts by our Editor Dr Prameetha George Ittycheria and Associate Editor Dr Merlin Thomas for the timely release.
Let us rekindle that fire within us to learn, unlearn and relearn

Dr Seema Joseph
Hon. Secretary
IDA Thiruvalla branch

MANAGEMENT OF HEPATITIS PATIENTS IN THE DENTAL OFFICE

Dr. Annie Kitty George MDS. Professor, Department of Periodontics, Pushpagiri College of Dental Sciences

ABSTRACT

Management of patients with infectious diseases in the dental operatory has to be backed up by adherence to clinical practice guidelines and their most recent up-dations. Dentists are at high risk for contracting infectious diseases such as hepatitis, tuberculosis and human immunodeficiency virus (HIV). This short review is a current update on the management of the patient reporting to the dental office with a history of hepatitis. Relevant recent information from data bases such as PubMed, Medline and Google Scholar and from Newman and Carranza's 14th edition of Clinical Periodontology and Implantology text book is collated into this review.

Key words: Hepatitis, Vaccination, Titer

INTRODUCTION

Viral hepatitis may be caused by hepatitis viruses A, B, C, D, E and G.[1] Another transfusion transmitted hepatitis has also been identified. These different forms of hepatitis differ in epidemiology and prophylaxis. High risk patients for hepatitis include those patients who have received multiple transfusions, drug users, immunosuppressed, individuals, homosexuals, health care workers, institutionalized and renal dialysis patients. Also, dental treatments may be included as risk factors for hepatitis B and C infections.[2]

HEPATITIS VIRUS INFECTION

Hepatitis A and E (HAV and HEV) cause self-limited infections with no associated chronic liver diseases. It is spread by oral-fecal route. Vaccination against HAV is available but not against HEV.

Hepatitis B virus infection (HBV) is spread by the hematogenous route and is of serious concern to health care workers and especially to dentists. HBV can result in chronic liver disease and a carrier state in more than 10% of patients. Permucosal or percutaneous injury with contaminated needles or instruments can be the most common route of infection and HB vaccination is mandatory for all dentists.

Hepatitis D virus (HDV) requires HBV for its survival and its prevention is similar to prevention of HBV with vaccination and protective titer levels.

Hepatitis C(HCV) is the most serious of all hepatitis infections due to its potential hematogenous spread, absence of a protective vaccine against it and due to its risk of chronic infection, chronic liver diseases (CLD) and hepatocellular carcinoma.

Hepatitis G (HGV) is less understood, has a hematogenous spread and is usually a co-infection with hepatitis A, B or C.

Transfusion transmitted (TTV) is common in the general population and is often present in patients with hepatitis and CLD. It can be transmitted through blood, fecal-oral route and also from mother to child and is often associated with HCV.

HEPATITIS B VACCINATION

Although hepatitis B is transmissible, it is preventable by adequate vaccination. All dental health care personnel should receive three doses of hepatitis B vaccine at a 0,1- and 6-month schedule. Protection against HBV is defined as titer levels of anti-HBs level ≥10 mIU/ml.[3,4]

10 % of vaccinated individuals may not develop the anti-hepatitis B surface antibody after all three doses. A post vaccination testing for antibody titer is recommended 1-3 months after the last dose of vaccine.[5]

GUIDELINES FOR DENTAL THERAPY IN THE HEPATITIS PATIENT:

1.For patients with a medical history of hepatitis, physician consultation should be advised to determine type of infection, its course, duration, routes of spread, presence of CLD or carrier state.[1]

2.For patients who give specific history of having recovered from HAV or HEV, routine dental treatments can be provided.

3.For patients who give a medical history of having recovered from HBV or HDV, physician should be consulted. Laboratory tests for hepatitis B surface antigen (HBsAg) and for antibody to HBV surface antigen (anti-HBs) can be done.

Patients who are HBs Ag positive may be considered potentially infective.

Those who are anti-HBs positive have antibody to HBsAg and can be treated routinely.

4.For the HCV positive patients, physician should be consulted to determine risk of transmission, CLD or carrier states.

5. Regardless of the type of disease, dental treatments should not be provided in the patient with active disease.

6.In case a patient with active hepatitis, HBs Ag positive (HBV carrier state) or positive HCV carrier state needs emergency dental therapy, the following precautions should be taken[1]:

a. Physician's evaluation of the patient prior to treatment.

b. If bleeding is expected during procedure, prothrombin and bleeding times must be evaluated.

c. All personnel who may come n contact with patient should use full barrier technique and all exposed surfaces have to be covered with disposable covers.

d. Strict aseptic protocol has to be followed

e. Minimize aerosol production

f. Pre-procedural rinse with chlorhexidine for 30 seconds is recommended.

g. After procedure, all non-disposable instruments have to scrubbed and sterilized and surfaces have to be cleaned and disinfected.

d. All disposable items and barriers used have to be bagged and labelled according to specifications of biomedical waste management guidelines.

If an injury occurs to the dentist during treatment of a HBV carrier, Center for disease control (CDC) and prevention guidelines recommend administration of hepatitis B immune globulin (HBIG). Post exposure management and prophylaxis has to be initiated within 24 hours of exposure. If the injured has not been vaccinated for HBV, the HBV also should be administered. The decision to administer either only active immunization (HBV vaccine) or both active and passive immunization (HBIG) will depend on the risk assessment and score of the exposure. Post-exposure prophylaxis may not be effective for a hepatitis C carrier.

REFERENCES

1. Newman, Michael G., Takei, Henry H., Klokkevold, Perry R., Carranza, Fermin A. (2019). Newman and Carranza Clinical Periodontology, 14th ed. (14).: Elsevier.
2. Mahboobi N, Porter SR, Karayiannis P, Alavian SM. Dental treatment as a risk factor for hepatitis B and C viral infection. A review of the recent literature. J Gastrointestin Liver Dis. 2013;22(1):79-86.
3. Singhal, V., Bora, D., & Singh, S. (2009). Hepatitis B in health care workers: Indian scenario. Journal of laboratory physicians, 1(2), 41–48. https://doi.org/10.4103/0974-2727.59697
4. Schillie S, Murphy TV, Sawyer M, et al. CDC guidance for evaluating health-care personnel for hepatitis B virus protection and for administering postexposure management. MMWR Recomm Rep 62: 1-19, 2013.
5. Van Damme P, Van Herck K. A review of the long-term protection after hepatitis A and B vaccination. Travel Med Infect Dis. 2007; 5:79–84. doi: 10.1016/j.tmaid.2006.04.004.

TRANSFORMING SMILE-A CASE STUDY

Dr .K N Thomas BDS, PG (Cert) Aesthetic Dentistry
Dr .Krishna Shaji BDS

ABSTRACT

This case study presents a comprehensive smile correction treatment plan for a patient with aesthetic concerns. A male patient reported with spacing between anterior teeth and concerns regarding his smile. The patient's smile was evaluated with front view and lateral view digital photographs. A comprehensive treatment plan was developed. Treatment included zirconia crown and bridges, midline diastema closure [DLE] technique and enamel contouring. Significant improvement in smile aesthetics was achieved, including enhanced tooth alignment and shape. The patient reported high satisfaction with treatment outcome.

Key words: Midline diastema closure, DLE Technique, Enamel contouring.

INTRODUCTION

In yesteryears when a patient approaches the dentist for a restoration or teeth replacement, importance was given for function rather than aesthetics. Smile designing or smile correction treatment modalities were not popular in those days. In recent days with the involvement of social media, the need for treatment like smile designing is of great importance. The below described case is a typical example of smile correction achieved within a short span of 7 days.

CHIEF COMPLAINT

A 34 year old male patient came to the clinic complaining of generalised spacing in the upper teeth region, unpleasant smile and difficulty in pronouncing certain words.

Figure: 1 Preoperative photograph

INVESTIGATION

An OPG was taken, which revealed a retained deciduous canine (63) and a missing lateral incisor (22).

Figure: 2: Orthopantomogram [OPG]

PREPERATION OF STUDY MODEL

Study models were prepared after the extraction of retained deciduous canine.

Figure 3: Study models

ANALYSIS OF STUDY MODEL

- Midline diastema measuring about 2mm.
- Peg lateral in relation to 12
- Crossbite in relation to 12 and 42
- 22 missing
- Mesiobuccal rotation in relation to 24
- Generalised spacing in the upper anterior region

TREATMENT PLAN

- Zirconia bridge in relation to 22,23,24
- Zirconia crown in relation to 12
- Midline diastema closure using light cure composite (DLE TECHNIQUE)
- Enamel contouring

TREATMENT PROCEDURE

Crown cutting was done on 23 and 24 for zirconium bridge.23 crown cutting was done as an abutment tooth with intention of giving appearance of 22 and 24 is prepared as next abutment teeth. Pontic tooth gives the appearance of 23. Zirconium bridge trial was done and finished zirconium bridge was luted.

Figure 4: Die model

Since crossbite was there in relation to 12 and 42, difficulty was there in providing clearance for zirconia crown 12. Enamel contouring was done lingually on 42 using enamel contouring kit providing clearance for 12 zirconia crown. Crown cutting was done on 12 and a trial of zirconia crown was done. Finished crown was later placed on 12 and luted.

Figure 5: Die model

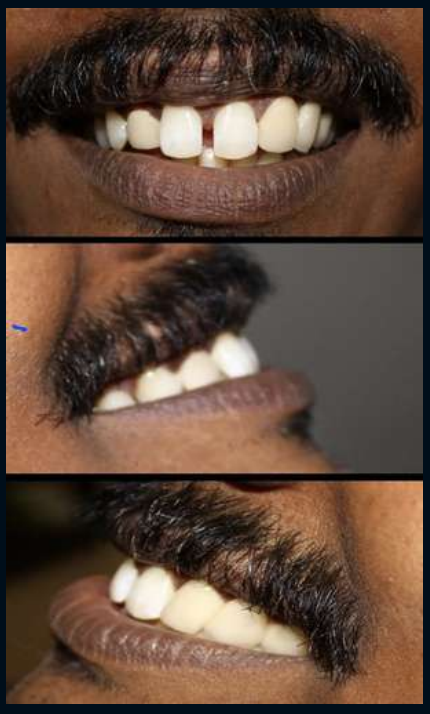


Figure 6: Postoperative Photographs

MIDLINE DIASTEMA CLOSURE (DLE TECHNIQUE)

Midline diastema closure was done by Double Layer Effect (DLE) Technique. Dentinal shade was selected using Vita Shade Guide. A2o dentin shade was selected. Enamel shade used here was High Value Translucent (HVT).

Enamel being essentially colourless is the principle determinant value of tooth modifying the dentinal hue to the observer. Deep layers of dentinal material determines the final colour of the restoration. This is the principle behind DLE Technique. Polishing was done to increase value or brilliance using Super Snap 4 step polishing system.

Length of the 11 and 21 was reduced by enamel contouring kit and patient is advised to use enamel re-mineralising toothpaste. Enamel contouring is an adjunct to smile designing to confine anterior teeth measurements to specified dimensions.

Figure 7: Postoperative photograph

SMILE TRANSFORMATION

Figure 8: Before

Figure 9: After

CONCLUSION

This case study demonstrates the effectiveness of a comprehensive smile correction treatment plan in enhancing smile aesthetics and patient satisfaction. The result highlights the importance of a multidisciplinary approach to smile correction combining Prosthodontic treatment, Cosmetic Dentistry and patient centered care.

A beautiful smile is more than just aesthetics-it`s a boost to confidence, health and happiness, made possible through the art and science of smile makeover.

REFERENCES

Goldstein, R.E. (1998) Esthetics in Dentistry.2nd Edition. Volume 1. B.C Decker Inc Hamilton London. Pp. 223-243

RIGHT TIME TO SEND THE PATIENT TO A PERIODONTIST –A REVIEW

Dr. Anjana Appukuttan 2nd year PG
Dr. Thomas George V.MDS Prof &HOD
Dr. Prameetha George Ittycheria MDS Reader
Dr.Saumya John MDS Reader.

ABSTRACT

Periodontal disease is among the most prevalent medical conditions. The diagnosis determines the course of treatment for periodontal disease. The management of risk factors and factors that influence the treatment of periodontal disease should also be a major part of the treatment plan. The diagnosis and treatment strategy for periodontal disease now have a success predictability level thanks to evidence-based developments. The undergraduate curriculum offers very little in the way of specialized study. Whether a general practitioner or a specialist treats a patient, the quality of care should be the same. Therefore, when it comes to making prompt and suitable referrals to periodontists, general dentists must be well-versed in the process. Coordinated efforts by the patient, general dentist, hygienist, and periodontist are necessary for a high-quality periodontal program. In general, the optimal care for a patient is achieved through idea sharing, alternative treatment modalities, and group accountability. The best approaches to treat periodontal disease in general practice, when to think about referring a patient, how to increase the patient's openness to further treatment, and how to make referrals as successful as possible are all covered in this article. In particular, the significance of disease features, factors pertaining to patients and providers, attitudes toward periodontal referral criteria, and perspectives of dental education are investigated.

Key words: Periodontitis, Referral procedure, Speciality, Obligations, Guidelines

INTRODUCTION

Periodontitis is a chronic multifactorial inflammatory illness associated with the progressive degradation of the supporting periodontal tissues. It has been proposed to be triggered by dysbiotic plaque biofilms colonizing a vulnerable host.

Nowadays, periodontitis, one of the most common dental diseases worldwide, is the main cause of adult tooth loss. Over 50% of adults have gingivitis, and over 30% have periodontitis, making periodontal disorders among the most prevalent illnesses to strike populations.

Therefore, an immense number of people need treatment to avoid the loss of function as well as the appearance because of tooth loss by periodontal damage. In dentistry, the procedure for referring patients comprises team-based method for treating and caring for people exchanged between the referring general practitioner and the specialist who is referred to. Several factors influence the choice to send a patient for special attention and management. medical, individual, and financial factors for the referring dentist as well as the specialist, the patient's choices, and resources, which work together to create the complex nature of the referral procedure in a standard dental office.[1]

The most important aspect of providing patients with successful and moral care is referring them to specialists. A patient should be sent to a periodontist well in advance of any teeth becoming movable. Systemic risk factors, such diabetes and smoking, deep pockets that have not improved with scaling and root planing, and radiographic evidence of infrabony bone defects are all signs of development towards the mobility of teeth.[2] These elements ought to reduce the amount of time needed to make a referral after a diagnosis. If the general practice is no longer able to adequately manage the risk of ongoing attachment loss, and periodontal destruction, then a referral to a periodontist is warranted. Furthermore, in the event that the general practice lacks internal surgical capabilities for regenerative or restorative therapy, a referral has to be discussed.

WHY A GENERAL DENTIST MUST REFER A PATIENT TO A PERIODONTIST [3]

In many ways, the field of periodontology is expanding. As long as they treat patients to a specialized level, dentists are permitted to treat periodontal disease. The dentist may be harming the patient by disregarding ethical standards if they lack the necessary education and expertise. The dentist will be held to the specialist's standard of care if they refuse to refer a patient and carry out the necessary procedure or treatment. Dentists must understand that negligence encompasses both acts of action and acts of omission. The following questions need to be asked by the dentist to his or her self

Is the treatment too much for me to handle?

Are the complications severe, and is it possible to treat them?

Can I do the procedure competently? Do I have the right background and training?

Can I execute the treatment without the patient feeling uncomfortable?

The main goal of referrals is to improve patient care, and these include 4:

1. Ensuring the patient receives excellent dental health care.
2. Effectively handling complicated or advanced cases.
3. Enhancing prosthetic or restorative results.
4. Handling patient-related or systemic health concerns.
5. Taking into account referral risk management factors.
6. Confirming that the patient understands and values the importance and advantages of the referral

DECIDING WHEN TO REFER TO A SPECIALIST [4]

1. When dentist do not have the interest for periodontal operations.
2. Not having enough training and experiencing a lot of unsuccessful attempts to get good results.
3. When considering the treatment to be very difficult.
4. Fearful that any post-treatment problems could have legal repercussions.
5. The patient has had specialized treatment in the past and would like to continue receiving therapy from one.
6. The office lacks the necessary equipment to address a specific issue.
7. The patient makes a referral request.

PRIOR TO RECOMMENDING SOMEONE

Every time a patient is referred to a specialist, appropriate communication should take place. There is cause for concern over the lack of contact between general dentist and periodontal specialist. From the standpoint of practice management, it is important to inform patients that initial periodontal therapy could not be the end of treatment but rather a phase of evaluation to establish additional recommendations. Therefore, patients should be informed before beginning phase 1 therapy that, depending on how their tissues respond to this initial treatment, a referral to a periodontist may be necessary [5]

The majority of general dentists now can diagnose periodontal disease in addition to treating gingivitis and mild-to-moderate periodontitis. Referrals to a periodontist are typically made in cases of more severe illness, significant tooth movement, a complex medical history, or unsuccessful previous therapy. The following elements should be taken into account while evaluating the possibility of a periodontist referral [4]

Age and general health status of the patient.

How serious the patient's problems are.

Particular oral regions in which destruction of periodontal issue happens.

The degree of comfort the patient has using dental instruments.

When results are comparable, give less invasive therapies priority.

When possible, discuss issues with the general dentist at the primary care level.

The referral must be accompanied by a thorough synopsis of the patient's medical history.

It must be made clear if antibiotic prophylaxis is necessary for dental care.

Copies of recent blood tests and radiographs

Every patient has to have a[6]

Record of consistent attendance and adherence.

Plaque Score: less than 20%. Using a periodontal probe, the plaque score will be applied to "Ramfjord's teeth" (16, 12, 24, 36, 32, 44) at six different places per tooth (mesio-buccal, mid-buccal, Disto-buccal, mesio-lingual, mid-lingual, and disto-lingual). When a continuous line of plaque is found on a surface by probing without revealing, a good score is noted.

Bleeding score less than 30% (ideally)

attention to quit smoking habit (all patients who have not quit after receiving cessation guidance must be enrolled in a program and have demonstrated a decrease in cigarette consumption). By then, the oral environment will be stable and all cavities and overhang restorations will have been managed.

Diabetes patients receiving specialized care, with a Hba1C of less than 7, unless they are Level C

High-quality diagnostic radiographs must be included with the referral. Full mouth periapical views will be included in generalized circumstances.

Dedication to regular maintenance

THE OBLIGATIONS OF A DENTIST WHO REFERS TO THE SPECIALIST

Only a limited amount of specific training is available to undergraduates. Therefore, dentists must be able to refer patients to periodontists in a timely and appropriate manner.

During the referral consultation, the doctor should explain to the patient the benefits of the treatment. While some patients never receive a referral from their dentists and are ignorant of the importance of visiting a periodontist, referrals to these specialists frequently happen at advanced stages of the disease.[7]

A candid conversation about the advantages, disadvantages, and dangers of treatment should take place if the general dentist and periodontist are in accord in order to help the patient make an informed choice. The referring dentist should not force the periodontist to follow a particular plan of action, just as the periodontist should not force therapy on the referring dentist. In order to guarantee that the patient receives therapy that is mutually agreed upon, the periodontist and the referring dentist should work together to make final treatment decisions. Regardless of whether the patient's dental history came from the office of the referring dentist or a prior practitioner, it is imperative that the periodontist be aware of it[8]

To support the general dentist's previous care or suggested additional therapy, the periodontist must communicate effectively.

Treatment results can be greatly impacted by the timing of referrals because delaying them can turn a treatable condition into an irreversible one. The patient's trust and dental health can be maintained by involving a professional in therapy as soon as possible [9]

PARTICULAR REFERRAL REQUIREMENTS [4]

For severe, early-stage periodontal disease

Young people who have severe periodontitis should speak with a periodontist. Additionally, patients in their twenties who are dealing with serious, widespread problems ought to make seeing a periodontist a top priority. It is appropriate to consult a periodontist before beginning any periodontal treatment if the clinical or radiographic presentation suggests aggressive periodontitis.

Prosthodontic Considerations and Extraction Decisions
The periodontist and restorative dentist must work together for patients with periodontal disease who need several extractions and then have their teeth replaced.Before beginning a general treatment plan, it is advised that these patients speak with a periodontist. The periodontist must assess osseous abnormalities, regardless of their extent or location in deep regions. To properly treat these areas, a diagnosis of the underlying reason is necessary.

Other distinct conditions
In addition, the periodontist can be of great help in treating other discrete problems, such crown lengthening or biologic width correction when there is insufficient crown height in for the rehabilitation

The Gingival Recession
For aesthetic coverage of denuded roots, patients who would rather have treatment for class I and II single or numerous gingival recessions may be sent to a periodontist.

Implants Patients who require dental implants to replace lost or broken teeth frequently benefit from a multidisciplinary strategy that involves a periodontist.

Problems with management
Some patients may not follow their cleanliness regimens, in which case it can be beneficial for your office to send them to a periodontist right away.

GUIDELINES FOR THE MANAGEMENT OF PATIENTS WITH PERIODONTAL DISEASES [10]

In 2005, the American Academy of Periodontology undertook the development of guidelines for the management of patients with periodontitis. The Guidelines offer information to help the referring dentist and periodontist quickly identify patients who would benefit from co-management.

LEVEL	
I - PATIENTS WHO MAY BENEFIT FROM COMANAGEMENT BY THE REFERRING DENTIST AND THE PERIODONTIS	Any patient with periodontal inflammation/infection and the following systemic conditions: Diabetes Pregnancy Cardiovascular Disease Chronic respiratory disease Any patient who is a candidate for the following therapies who might be exposed to risk from periodontal infection, including but not limited to the following treatments: Cancer therapy Cardiovascular surgery Joint-replacement surgery Organ transplantation
II - PATIENTS WHO WOULD LIKELY BENEFIT FROM COMANAGEMENT BY THE REFERRING DENTIST AND THE PERIODONTIST	Any patient with periodontitis who demonstrates at re-evaluation or any dental examination one or more of the following risk factors/indicators known to contribute to the progression of periodontal diseases: Periodontal Risk Factors/Indicators Early onset of periodontal diseases (prior to the age of 35 years) inflammation at any site (e.g., bleeding upon probing, pus, and/or redness) Pocket depths ≥ 5 mm, Vertical bone defects, Radiographic evidence of progressive bone loss, Progressive tooth mobility, Progressive attachment loss, Anatomic gingival deformities ,Exposed root surfaces, A deteriorating risk profile. Medical or Behavioural Risk Factors/Indicators Smoking/tobacco use, Diabetes Osteoporosis/osteopenia, Drug-induced gingival conditions (e.g., phenytoins, calcium channel blockers, immunosuppressants, and long-term systemic steroids), Compromised immune system either acquired or drug induced, A deteriorating risk profile

LEVEL	
III - PATIENTS WHO SHOULD BE TREATED BY A PERIODONTIST	Any patient with: • Severe chronic periodontitis • Furcation involvement • Vertical/angular bony defect(s) • Aggressive periodontitis (formerly known as juvenile, early-onset, or rapidly progressive periodontitis) • Periodontal abscess and other acute periodontal conditions • Significant root surface exposure and/or progressive gingival recession • Peri-implant disease • Any patient with periodontal diseases, regardless of severity, whom the referring dentist prefers not to tr

PERIODONTICS REFERRAL CRITERIA

Referrals will be refused if they don't fit the requirements 11.

Level 1: Routine Complexity

All general dental practitioners are expected to practice within this scope. Referrals will NOT be accepted for referral triage.

Diagnosis and management of patients with uncomplicated periodontal diseases including but not limited to:

- Evaluation of periodontal risk, diagnosis of periodontal condition & design of
- initial care plan within the context of overall oral health needs.
- Measurement & accurate recording of periodontal indices
- Communication of nature of condition, clinical findings, risks & outcomes.
- Designing care plan and providing

Level 1 Protocol treatment

- Assessment of patient understanding, willingness & capacity to adhere to advice & care plan.
- Evaluation of outcome of periodontal care and provision of supportive periodontal care programme.
- On-going motivation & risk factor management including plaque biofilm control.
- Avoidance of antibiotic use except in specific conditions (necrotising periodontal diseases or acute abscess with systemic complications) unless recommended by a specialist as part of a comprehensive care plan.
- Preventive & supportive care for patients with implants.
- Palliative periodontal care (PPC) which encourages patients to change from non-engaging to engaging patients and periodontal maintenance.

- Patients with Grade C Periodontitis will be referred after initial preventive advice on risk factor management and oral hygiene instruction. All other cases of periodontitis will have initial care (including treatment) and if unsuccessful referral may then be indicated.

Level 2 Complexity: Moderately challenging
The following situations make level 2 referrals appropriate for the treatment of periodontal issues:

- When primary care periodontal therapy is finished (per the Level 1 treatment protocol), the patient has residual genuine active pocketing of 6 mm or more and more than 30% bone loss.
- Periodontitis grade C, as assessed by a specialist at the time of referral.
- When strategically significant, realistic, and assigned by a professional, furcation faults may occur.
- Gingival hypertrophy can be managed non-surgically in cooperation with medical colleagues.
- When assigned and overseen by an expert, pocket reduction surgery.
- Peri-implant mucositis, when gum inflammation is limited to the soft tissues of the dental implant and does not accompany bone loss; this condition occurs in cases where implants were

Level 3 Complexity

- At least 6 mm of real active pocketing and bone loss greater than two-thirds of the root length are indicators of Grade C or Stage IV periodontitis.
- In a single year, rapid periodontal breakdown causes >2 mm of attachment loss.
- It is not appropriate for delegating to require periodontal surgery.
- Treatment of gingival hyperplasia by surgery.
- Delegation to a Level 2 practitioner is not appropriate for periodontal illnesses that are not caused by plaque, as well as for furcation defects and other complex root morphologies.
- When implants have been placed under an NHS Contract, peri-implantitis is the condition that the NHS is responsible for managing.

BSP GUIDELINES FOR REFERRALS OF PERIODONTAL PATIENTS [12]

Referral recommendations for periodontal care and treatment are outlined in this paper. It outlines the various levels of complexity associated with properly referring individuals in need of periodontal care to a secondary care facility. As with all team-based treatment, effective communication between physicians and patients is essential to a care pathway's long-term effectiveness.

BSP GUIDELINES FOR REFERRALS OF PERIODONTAL PATIENTS [12]

Referral recommendations for periodontal care and treatment are outlined in this paper. It outlines the various levels of complexity associated with properly referring individuals in need of periodontal care to a secondary care facility. As with all team-based treatment, effective communication between physicians and patients is essential to a care pathway's long-term effectiveness.This is to guarantee appropriate follow-up and consistency of treatment goals. The three levels of complexity are described in this care policy along with a list of pertinent modifying factors.

The policy is meant to serve as a guide for clinical practice and enumerates illnesses that have a substantial impact on the clinical management of patients with periodontal diseases.

The 2017 Classification of Periodontal Diseases and Conditions and the Commissioning Standard for Restorative Dentistry are both in line with the BSP referral recommendations. Additional background information is accessible in the relevant BSP policy paper, "Basic Periodontal Examination (BPE)," which includes specifics of BPE-based periodontal screening and related periodontal assessments.

Periodontal Treatment Assessment	**Detailed analysis of behavioural, social, and medical aspects that affect periodontal health**
LEVEL 1 COMPLEXITY: Every Patient The optimal setting for treatment would be a general dental practice.	Diagnosis and management of patients with uncomplicated periodontal diseases including but not limited to: Assessing periodontal risk, diagnosing periodontal disease, and creating a first treatment plan in light of the requirements for overall oral health. Accurate measurement and documentation of periodontal indices. Explaining the condition's nature, clinical findings, dangers, and results Creating a treatment plan and administering care Evaluation of the patient's comprehension, readiness, and ability to follow instructions and the care plan.

Periodontal Treatment Assessment	**Detailed analysis of behavioural, social, and medical aspects that affect periodontal health**
	• Professional as part of an all-encompassing treatment plan, or in some circumstances (necrotizing periodontal diseases or acute abscess with systemic implications). • Supportive and preventive treatment for implant recipients • Both periodontal maintenance and palliative care.
LEVEL 2 COMPLEXITY: Oral healthcare specialists in general dentistry practices may refer patients or give treatment. In certain cases, a specialist may be required to provide periodontal/peri implant treatment as part of a more intricate integrated treatment plan.	Management of Patients: − Who has stage II, III, or IV periodontitis (>30% bone loss) and remaining true pocketing of 6 mm or more after receiving primary care periodontal therapy? According to a specialist's assessment at referral, they had Grade C periodontitis. Furcation faults and other intricate root morphologies, when designated by a professional and deemed strategically significant and practical. With the help of medical colleagues, non-surgically treat gingival hypertrophy. Who needs pocket reduction surgery when a physician recommends it? With peri-implant mucositis; with some non-plaque-induced periodontal diseases, such as those caused by viruses, autoimmune disorders, abnormal pigmentation, vesiculo-bullous disease, and periodontal manifestations of gastrointestinal and other systemic diseases and syndromes, under the supervision of a specialist.

Periodontal Treatment Assessment	Detailed analysis of behavioural, social, and medical aspects that affect periodontal health
LEVEL 3 COMPLEXITY: After appropriate nonsurgical treatment has been administered in general practice and lifestyle or behavioural risk factors have been addressed, patients are typically referred	Patients who have Grade C or Stage IV periodontitis (bone loss greater than two-thirds of the length of the root) and real pocketing of 6 mm or more are triaged and managed. In need of periodontal surgery. Furcation flaws and other intricate root structures that are unsuitable for delegation. Non-plaque-induced periodontal illnesses are not appropriate for a practitioner with advanced expertise to handle. Individuals that need Level 3 multidisciplinary specialist treatment. When level 2 complexity individuals don't react to therapy. Non-plaque induced periodontal diseases, including periodontal manifestations of systemic diseases, should be diagnosed, care pathways should be established with pertinent medical colleagues, conditions should be managed cooperatively with practitioners with enhanced skills when appropriate, and colleagues should be advised and treated. With peri-implantitis.

It is recommended that all patients of periodontitis receive initial care, including treatment; if this proves unsuccessful, referral may be necessary.[13]
Moving to the next level of therapy may be necessary for patients with modifying factors, especially those whose behaviour is difficult to change.

Letters of recommendation must be accompanied with proof of the latter[14]. Once risk factor management and dental hygiene education have been provided, patients with Grade C Periodontitis should be referred.

MODIFYING FACTORS RELEVANT TO PERIODONTAL TREATMENT:

- Dental special care for the acceptance or provision of treatment
- concurrent mucogingival disease, such as erosive lichen planus
- coordinated medical or dental multidisciplinary care; regular tobacco uses and nicotine-delivering tobacco substitute products, such as vaping; medical history that has a significant impact on clinical management
- Individuals who are immunocompromised or immunosuppressed; those who have had head/neck radiation therapy or intravenous bisphosphonate therapy; those who have a serious bleeding disease or dyscrasia; and those who may be experiencing a medication interaction [15]

CONCLUSION

Dentists have an obligation to maintain dental health by making reasonable efforts. They must to be aware of their part in patient motivation and develop an appropriate recall procedure. As the illness progresses, dentists should determine whether patients require periodontal care and promptly refer them to a periodontist. They should also understand the role that periodontists play in Phase-I treatment and interdisciplinary dentistry.

Dental educators need to think about how to teach aspiring dentists to make timely referrals for periodontal patients and make the right treatment decisions. All dental professionals must work together at every stage of oral health treatment, including referral process and methodology. Dentists can ensure the right flow of care, which is essential for attaining the best results, by taking a coordinated approach to patient treatment. Most patients are open and appreciative of the chance to see a specialist when referral recommendations are given in a setting of safety, concern, and care. Future studies should examine how dentistry school curricula might better equip students to refer patients for periodontal therapy when it's essential and timely.

REFERENCES

- McGuire MK, Scheyer ET. A referral-based periodontal practice–Yesterday, today, and tomorrow. Journal of periodontology. 2003;74(10):1542-4.
- Armitage GC, Robertson PB. The biology, prevention, diagnosis and treatment of periodontal diseases: scientific advances in the United States. The Journal of the American Dental Association. 2009 Sep 1;140:36S-43S.

- Bhati AK. Referral to a periodontist by a general dentist: An understanding of the referral process. Journal of Dental Research and Review. 2016 Jan 1;3(1):42-4.
- Ravishankar PL, Baluguru S. Referral to periodontist by a general dentist-A general guideline. Journal of Dental Specialities. 2024 Jan 1;12(1).
- Sweeting LA, Davis K, Cobb CM. Periodontal Treatment Protocol (PTP) for the general dental practice. Journal of Dental Hygiene. 2008 Oct 2;82.
- Lee JH, Bennett DE, Richards PS, Inglehart MR. Periodontal referral patterns of general dentists: lessons for dental education. Journal of dental education. 2009 Feb;73(2):199-210.
- Dockter KM, Williams KB, Bray KS, Cobb CM. Relationship between prereferral periodontal care and periodontal status at time of referral. Journal of periodontology. 2006 Oct;77(10):1708-16.
- Kumar A. Referral of a periodontal patient-when & why. J Oral Health Community Dent. 2007;1:23-6.
- Krebs KA, Clem III DS. Guidelines for the management of patients with periodontal diseases. Journal of periodontology. 2006 Sep;77(9):1607-11.
- Cherian DA, Dayakar MM, Thermadam TP. Rationale of referral of patients to a periodontist by general practitioners: Review with a cross-sectional survey. Journal of Interdisciplinary Dentistry. 2015 Jan 1;5(1):7-11.
- The British Society of Periodontology and Implant Dentistry 2020 www.bsperio.org
- Park CH, Thomas MV, Branscum AJ, Harrison E, Al-Sabbagh M. Factors influencing the periodontal referral process. Journal of periodontology. 2011 Sep;82(9):1288-94.
- Cobb CM, Carrara A, El-Annan E, Youngblood LA, Becker BE, Becker W, Oxford GE, Williams KB. Periodontal referral patterns, 1980 versus 2000: A preliminary study. Journal of periodontology. 2003 Oct;74(10):1470-4.
- Zemanovich MR, Bogacki RE, Abbott DM, Maynard Jr JG, Lanning SK. Demographic variables affecting patient referrals from general practice dentists to periodontists. Journal of periodontology. 2006 Mar;77(3):341-9

MOLAR INCISAL HYPOMINERALIZATION- A PUZZLE TO SOLVE!

Dr Divya Philip
Senior Lecturer, Dept of Pedodontics
Pushpagiri College of Dental Sciences
Thiruvalla

ABSTRACT

Molar incisor hypomineralization (MIH) is a highly prevalent dental developmental disorder with a significant health burden for patients. It is characterized by defects in enamel formation that result in hypomineralized, discolored areas, which may lead to increased sensitivity, decay, and esthetic concerns. MIH presents a considerable clinical challenge due to its diverse clinical spectrum. The severity of enamel defects can range from mild opacities with minimal functional impact to extensive post-eruptive breakdown, and increased sensitivity leading to structural compromise and significant discomfort and making affected teeth susceptible to caries and dental pain. The precise etiology of MIH remains unclear, but research suggests a combination of genetic and environmental factors. This review article aims to highlight the etiological,clinical and diagnostic considerations of MIH along with its management

Key Words: Molar incisal hypomineralisation,enamel defects,developmental disorder

INTRODUCTION

Molar incisor hypomineralization (MIH) is a highly prevalent dental developmental disorder with a significant health burden for patients[1]. It is a qualitative developmental enamel defect of systemic origin, affecting at least one of the four first permanent molars, and is often associated with opacities that form on the permanent maxillary incisors or less commonly on the permanent mandibular incisors It is characterized by defects in enamel formation that result in hypomineralized, discolored areas, which may lead to increased sensitivity, decay, and esthetic concerns.

The aetiology still remains unclear although several systemic and genetic and/or epigenetic factors acting synergistically or additively seem to be associated with MIH, revealing a multifactorial aetiology mode.[1-3] The condition is becoming increasingly recognized, with studies reporting variable prevalence rates ranging from 3% to 40% in different populations[4]. MIH presents a considerable clinical challenge due to its diverse clinical spectrum. The severity of enamel defects can range from mild opacities with minimal functional impact to extensive post-eruptive breakdown, and increased sensitivity leading to structural compromise and significant discomfort and making affected teeth susceptible to caries and dental pain.[1-5]

EPIDEMIOLOGY

Since the original definition of MIH as a distinct clinical entity in 2017, numerous studies, reporting on the prevalence of MIH in both general and clinical populations, have been conducted around the world.

The reported prevalence of MIH varies widely, from 3%–40%, depending on the population and country studied. However, recent meta-analyses suggest that MIH affects around 13%–14% of the world's children. The treatment burden of these children will obviously vary according to the severity of the hypomineralisation and the number of teeth affected, but it is estimated that around one-quarter of children with MIH will need clinical interventions as a result of symptoms or posteruptive tissue breakdown[6-10]

ETIOLOGY

The precise aetiology of MIH remains uncertain, generating considerable debate and enquiry. The literature has described a wide variety of risk factors for MIH, which often involve a hypoxic or hyperpyrexic insult at a critical phase of tooth mineralization. During the prenatal period (the last gestational trimester), maternal illness, medication use and exposure to environmental pollutants seem to be associated with an increased likelihood of MIH.

The precise etiology of MIH remains unclear, but research suggests a combination of genetic and environmental factors may contribute to its development. Enamel formation is a highly complex process that can be disrupted by systemic conditions such as febrile illnesses, antibiotics, or exposure to environmental toxins during the mineralization phase of tooth development. The condition most commonly affects the first permanent molars and the incisors, which are the first teeth to develop and mineralize.

Several hypotheses have been proposed regarding the pathogenesis of MIH, including the disruption of ameloblast function due to systemic factors, alterations in calcium and phosphate metabolism, and possible immunological mechanisms. Additionally, premature birth or low birth weight may increase the risk of MIH, as these factors can interfere with the maturation and mineralization of enamel.[2,5,7,9]

CLINICAL PRESENTATION

The hallmark of MIH is the presence of hypomineralized enamel, which appears as demarcated white, yellow, or brown patches on the affected teeth. These lesions are typically soft, prone to rapid wear, and may be hypersensitive to temperature changes. In severe cases, the enamel can be almost absent, leading to significant structural defects.

MIH can vary in severity from mild to severe, and the clinical presentation depends on the extent of enamel involvement. In mild cases, the affected teeth may have slight discoloration without any significant structural loss. In more severe cases, the enamel can be extremely fragile, prone to chipping, and may require extensive restorative work. The aesthetic and functional concerns associated with MIH can have a profound impact on a child's self-esteem, especially if the incisors are affected.

The hypomineralized enamel will be softly porous and has a discolored chalky appearance. Demarcated white/yellow/ brown opacities usually limited to incisal or cuspal one third, rarely involving cervical one third. Defects that are <1 mm are not reported under MIH.In molars, posteruptive enamel breakdown is common due to occlusal loadingRapid caries progression- .because of the porous and friable enamel structure2,5,14

DIAGNOSIS

Diagnosing MIH involves a thorough clinical examination, supported by radiographic imaging when necessary. The most common diagnostic features include the presence of well-demarcated opacities or discolorations on the affected molars and incisors. The severity and extent of enamel loss can often be assessed visually, but dental professionals may use high-resolution radiographs to determine the involvement of underlying tooth structures.

Differential diagnoses include dental fluorosis, which can also result in discolored enamel but with a more diffuse pattern. Enamel hypoplasia, another developmental defect, can also cause defects but is often associated with a more generalized pattern of hypomineralization.3,14,15

Criteria for diagnosing incisor molar hypo mineralization syndrome (MIH) proposed by EAPD

Diagnosis criteria	Clinical Feature
Impairment of first permanent molars and permanent incisors.	At least one of the permanent molars must be affected Permanent incisors can be affected, at the same time. Temporary teeth can also be affected: second molars, incisors and canine tip.

Diagnosis criteria	Clinical Feature
Demarcated opacities.	Opacities located on the occlusal and vestibular surface of the crown. The colour of the opacities is variable: white, cream, yellow, brown.
Disintegration of dental enamel, hypersensitivity, damage to aesthetics depend on the severity of enamel defects.	The severity of enamel defects depends on the opacity's degree of porosity. Mild MIH syndrome: marked opacities without enamel breakdown, occasional sensitivity to external stimuli (but not to brushing) and a slight aesthetic impairment. Severe MIH syndrome: demarcated opacities that cause enamel disintegration, cavities grafted at this level, continuous or spontaneous hypersensitivity (also occurs during brushing) and aesthetic impairment that can have a psychological impact
Atypical coronary restorations	Atypical coronary restorations in the first permanent molars and incisors.
Dental extractions.	The presence of dental extractions is relevant for the diagnosis only if there is a medical history of MIH or there are opacities demarcated on another permanent molar.

MANAGEMENT STRATEGIES

The management of MIH focuses on both preventive and restorative strategies to address the enamel defects. Early intervention is critical to minimize the impact of the condition on oral health.

- Preventive Measures: The use of fluoride varnishes and remineralization agents can help to strengthen the enamel and reduce sensitivity. Proper oral hygiene and diet modifications are essential to prevent decay in affected teeth.
- Restorative Treatments: For moderate to severe cases, restorative procedures are often required. Resin-based composites are commonly used for fillings, but crowns may be needed for severely affected molars. The use of preformed metal crowns or zirconia crowns is also a viable option for restoring damaged first molars.
- Pain Management: Many patients with MIH experience hypersensitivity. The use of desensitizing agents, such as potassium nitrate, can alleviate discomfort. In some cases, nerve treatments may be necessary for more severe sensitivity issues.[12,14,15]

MIH can present several challenges, both clinically and psychologically. The aesthetic concerns, particularly in the visible incisors, may cause significant distress for children and adolescents, affecting their social and emotional well-being.

In addition to the cosmetic issues, the structural weakness of the affected teeth increases the risk of dental caries and sensitivity, requiring more frequent dental visits and complex restorative treatments.

COMPLICATIONS AND CHALLENGES

For dental professionals, the management of MIH can be challenging due to the unpredictable nature of the condition and the need for personalized treatment plans. The fragility of the enamel in MIH-affected teeth makes traditional restorative techniques more difficult, requiring the use of specialized materials that can withstand the altered mechanical properties of the enamel.[14,15]

RECENT ADVANCES AND FUTURE DIRECTIONS

Recent studies have focused on better understanding the genetic and environmental factors involved in MIH. Advances in molecular biology may soon allow for more targeted prevention and treatment strategies. Additionally, research into novel restorative materials, such as bioactive composites and self-healing materials, offers promising avenues for improving the outcomes of MIH treatment.

Future research should also aim to establish clear diagnostic criteria and standardized treatment protocols to ensure consistent care across different clinical settings.

CONCLUSION

Molar Incisal Hypomineralization (MIH) is a significant pediatric dental concern that requires early recognition and personalized management. While the etiology remains multifactorial, ongoing research is shedding light on potential causes and more effective treatments. Dental professionals should remain vigilant in diagnosing MIH and providing appropriate care to prevent long-term complications. By improving awareness and treatment options, the impact of MIH on children's oral health can be minimized, ensuring better overall outcomes.

REFERENCES

1. Bulanda S, Ilczuk-Rypuła D, Dybek A, Pietraszewska D, Skucha-Nowak M, Postek-Stefańska L. Management of teeth affected by molar incisor hypomineralization using a resin infiltration technique—A systematic review. Coatings. 2022 Jul 7;12(7):964.
2. Rodd HD, Graham A, Tajmehr N, Timms L, Hasmun N. Molar incisor hypomineralisation: current knowledge and practice. International dental journal. 2021 Aug 1;71(4):285-91.
3. Bekes K, Steffen R, Krämer N. Update of the molar incisor hypomineralization: Würzburg concept. European Archives of Paediatric Dentistry. 2023 Dec;24(6):807-13.
4. Alzahrani AY, Alamoudi NM, El Meligy OA. Contemporary understanding of the etiology and management of Molar Incisor hypomineralization: a Literature Review. Dentistry Journal. 2023 Jun 23;11(7):157.
5. Lygidakis NA, Garot E, Somani C, Taylor GD, Rouas P, Wong FS. Best clinical practice guidance for clinicians dealing with children presenting with molar-incisor-hypomineralisation (MIH): an updated European Academy of Paediatric Dentistry policy document. European Archives of Paediatric Dentistry. 2022 Feb 20:1-9.
6. Lopes LB, Machado V, Mascarenhas P, Mendes JJ, Botelho J. The prevalence of molar-incisor hypomineralization: a systematic review and meta-analysis. Scientific reports. 2021 Nov 17;11(1):22405.
7. Goel N, Jha S, Bhol S, Dash BP, Sarangal H, Namdev R. Molar incisor hypomineralization: clinical characteristics with special emphasis on etiological criteria. Journal of Pharmacy and Bioallied Sciences. 2021 Jun 1;13(Suppl 1):S651-5.
8. Bardellini E, Amadori F, Rosselli L, Garo ML, Majorana A, Conti G. Molar incisor hypomineralization: optimizing treatment protocols for hypersensitivity: a randomized clinical trial. Dentistry Journal. 2024 Jun 19;12(6):186.

9.Al-Nerabieah Z, AlKhouli M, Dashash M. Navigating the Complexities of Molar Incisor Hypomineralization: Challenges and Strategies in Pediatric Dentistry. International Journal of Dentistry. 2025;2025(1):9329492.

10.Guerra BM, Jorge RC, Reis PP, Machado GD, Fidalgo TK, Soviero VM. Prevalence of molar incisor hypomineralization and demands for treatment according to the severity of its clinical manifestation. Clinical Oral Investigations. 2025 Jan;29(1):1-0.

11.Jianu MC, Muntean A, Mihălțan CI, Pacurar M, Munteanu A. Molar incisor hypomineralisation: A review of etiology, diagnosis criteria and patterns considering eapd criteria. Romanian Journal of Oral Rehabilitation. 2022 Jan;14(1).

12.Lygidakis NA, Garot E, Somani C, Taylor GD, Rouas P, Wong FS. Best clinical practice guidance for clinicians dealing with children presenting with molar-incisor-hypomineralisation (MIH): an updated European Academy of Paediatric Dentistry policy document. European Archives of Paediatric Dentistry. 2022 Feb 20:1-9.

13..Lopes LB, Machado V, Mascarenhas P, Mendes JJ, Botelho J. The prevalence of molar-incisor hypomineralization: a systematic review and meta-analysis. Scientific reports. 2021 Nov 17;11(1):22405.

1.

14.Eriksen N, Kostandini D. New Approaches to Diagnosis and Management of Molar Incisor Hypomineralization. A Literature Review. European Journal of Natural Sciences and Medicine. 2023 Jul;6(2):128-36.

15.Somani C, Taylor GD, Garot E, Rouas P, Lygidakis NA, Wong FS. An update of treatment modalities in children and adolescents with teeth affected by molar incisor hypomineralisation (MIH): a systematic review. European Archives of Paediatric Dentistry. 2022 Feb;23(1):39-64.

Fig 1 (a-f) : clinical pictures showing molar incisal hypomineralisation

DOES AGING AFFECT PERIODONTIUM?

Dr.Merlin Thomas,MDS
Consultant Periodontist

ABSTRACT

Periodontal diseases may occur during childhood, adolescence and during adulthood. During these phases there remains alterations in periodontium with age. Hence this article gives an insight how periodontium changes with age. This in turn enables an appropriate periodontal therapy thereby resulting in favorable outcome.

Keywords: Aging, periodontium, Periodontal ligament, Cementum, Alveolar bone

INTRODUCTION

The tissues that invest and support the teeth are called the periodontium. The tissues that mainly forms part of the periodontium include gingiva, periodontal ligament (PDL), cementum and bone. So, with age, changes occur in each of these tissues. These changes may be due to inflammation or as a result of aging. Aging is slowing of natural functions and disintegration of balanced control and organization. The degree of periodontal breakdown increases with increasing age[1,2,3]. Bernier et al. reported physiological changes in the tissues during aging may be responsible for a shift in the host response. The equilibrium between plaque attack and host response may be disturbed and as a consequence progression of periodontal disease can occur[4].

EFFECT OF AGING ON PERIODONTAL TISSUES

1.GINGIVAL EPITHELIUM:

With increasing age, following changes occur (figure 1):

Thinning and decreased keratinization of the gingival epithelium: This leads to increased epithelial permeability to bacterial antigens, a decreased resistance to functional trauma, or both.

Flattening of rete pegs: Rete pegs are epithelial projections that are penetrated into lamina propria. It has two important functions:

(i) Enhance the adhesion between epithelium and connective tissue and thus help to scatter external forces and masticatory stresses to oral mucosa which is constantly exposed.

(ii) They act as physical protective niches where keratinocyte stem cells reside [5].

As a result of aging these functions are also affected.

- Epithelial cell density increases with age: The increased cell density could result from decreased cell size and/or a decrease in the intercellular substance. So In order to maintain the functional thickness of the epithelium, more cells are required, and a proportionate increase in mitotic activity naturally follows[6]
- Gingival tissues shows higher anti-apoptotic and lower pro-apoptotic gene expression because gingival fibroblasts from aged individuals displays reduced capacities of cell proliferation and migration.
- Stippling is produced by alternate rounded protuberances and depressions in gingival surface. With age as degree of keratinization decreases, the prominence of stippling reduces.

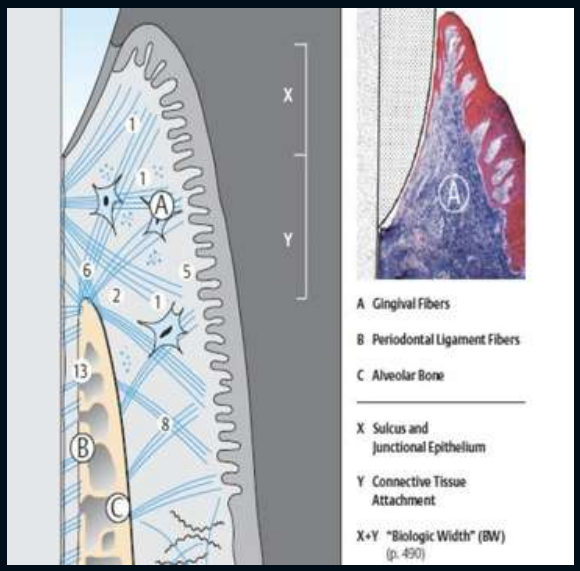


Figure 1: Gingival epithelium

- Junctional epithelium (JE): According to some researchers, there is apical migration of JE due to continuous passive tooth eruption[7,8,9]. This continuous passive tooth eruption occurs throughout lifetime to compensate for occlusal wear. Due to continuous eruption, CEJ of tooth moves incisaly but location of gingival margin remains constant resulting in apical migration of JE.
- In contrast there are other studies which suggest there is no apical migration of JE if periodontium is healthy[10,11]. This hypothesis is based on two observations i.e. absence of change in mucogingival junction with advancing age and increase in width of gingiva with age in the absence of pathological gingival recession.
- With age, the width of attached gingiva increases. This is because the mucogingival junction remains at genetically predetermined location while the teeth move in an occlusal direction through adult life. In the absence of concurrent retraction of the gingival margin this results in an increase of the width of attached gingiva with advancing age.
- 2. GINGIVAL CONNECTIVE TISSUE:
- Increasing age results in coarser and denser gingival connective tissues[12]

- Cellular composition of connective tissue which include mainly fibroblast decreases with age. As a result there is decrease in collagen synthesis.
- Qualitative and quantitative changes in collagen have been reported. These changes include an increased rate of conversion of soluble to insoluble collagen, increased mechanical strength, and increased denaturing temperature. These results indicate increased collagen stabilization caused by changes in the macromolecular conformation.

3.Periodontal Ligament (PDL): The periodontal ligament provides the supporting connection of the cementum to alveolar bone through bundles of type I collagen named Sharpey's fibers. The PDL consists of numerous cell types including fibroblasts, cementoblasts, osteoblast, osteoclast and collagen matrix. Aging results in decrease the cellularity and fiber content of PDL. decreased organic matrix production, epithelial cell rests and increased amounts of elastic fiber.

4. Cementum: Cementum is a calcified connective tissue covering the roots of teeth. It's formation is a continuous process[8]. Hence, with age, the cementum increases in width. With age, local resorption at the cementum surface followed by cementum apposition is often observed. Resorption and apposition of cementum results in increased irregularity of the cemental surface.[13]

- With age, the abnormalities seen are:
- Hypercementosis: Non neoplastic deposition of excessive cementum that is continuous with the normal radicular cementum.
- Cemental tear: It can occur either as a split within the cementum that follows one of its incremental lines or more commonly as a complete separation along the cemento-dentinal border. It occurs due to weakening of fibers that adhere to cementum and dentin. When the extension of PDL is not controlled properly, it may exert extensive or inadequate force on cementum and contribute to the separation of cementum from dentin.

5. Alveolar bone: With aging, there is loss of bone mineral density, reduced trabceculae, thinned cortical plates, decreased vascularity and water content, thickened collagen fibers and decreased bone formation. Hence, there is reduction in metabolism and so increased susceptibility to fractures. In addition, reduction in bone height occurs with aging (senile atrophy). With increasing age, the surfaces of alveolar bone become jagged and that collagen fibers insert less regularly in bone. Bone also undergoes osteoporosis with aging.

6. Plaque:
Dentogingival plaque accumulation has been suggested to increase with age. This may be explained by the increase in hard tissue surface area as a result of gingival recession and age-related changes in salivary flow.

EFFECTS OF AGING ON THE PROGNOSIS

- Patients with the same amount of periodontal disease, the rule holds: the older the patient, the better the prognosis in terms of no recurrence of the disease[14,15]. This is based on the reasoning that the resistance to periodontal breakdown is higher in older individuals, since the process of periodontal destruction takes much less time in younger individuals. A younger patient with severe periodontal disease would not only be more susceptible to recurrence of breakdown but, in addition, the teeth have to serve for another 40-50 years. Periodontal treatment including surgical elimination of pathologically deepened pockets has a favorable prognosis in old patients since they do not represent individuals who are highly susceptible to periodontal disease.

CONCLUSION

Periodontal disease increases in prevalence and severity with increasing age. The increase may be caused by the cumulative effect of periodontal destruction, deterioration in plaque removal efficiency, or an increase in the number of teeth retained in old age and therefore affected by plaque-induced disease. Although there are concerns that older patients have increased susceptibility to periodontal disease, role of age in disease progression is minimal.

With appropriate dental therapy and maintenance of low plaque levels, clinicians can assure older patients that they can keep a functioning dentition.

REFERENCES

1.Schei, Olav et al. Alveolar Bone Loss as Related to Oral Hygiene and Age. Journal of Periodontology. 1959;30: 7-16.

2.Plasschaert. A. J. M., Folmer, T., van den Heuvel, .1. L. M., Jansen, .1., van Opijnen, L. .1., 7 heuns. H. & Wouters, S. L. .]. Parodontale aandoeningen bij volwassen werknemers van enkele bedrijven in Nederland; opzet en resultaten van een epideniiologisch onderzoek. Nederlands Tijdsehrifl voor Tandheelkuttde.1976;83:278-331.

3.Foe. H., Anerud, A., Boysen, IF & Smith, M.The natural history of periodontal disease in man. Journal of Periodonlology;1978;49:607-21.

4.Bernier. .1. F.The role of orgati systems and age in periodontal disease. Journal of Periodoniology.1958;29:247-53.

5.Xiong, X., Wu, T., & He, S. Physical forces make rete ridges in oral mucosa. Medical Hypotheses,2013; 81(5), 883–86.

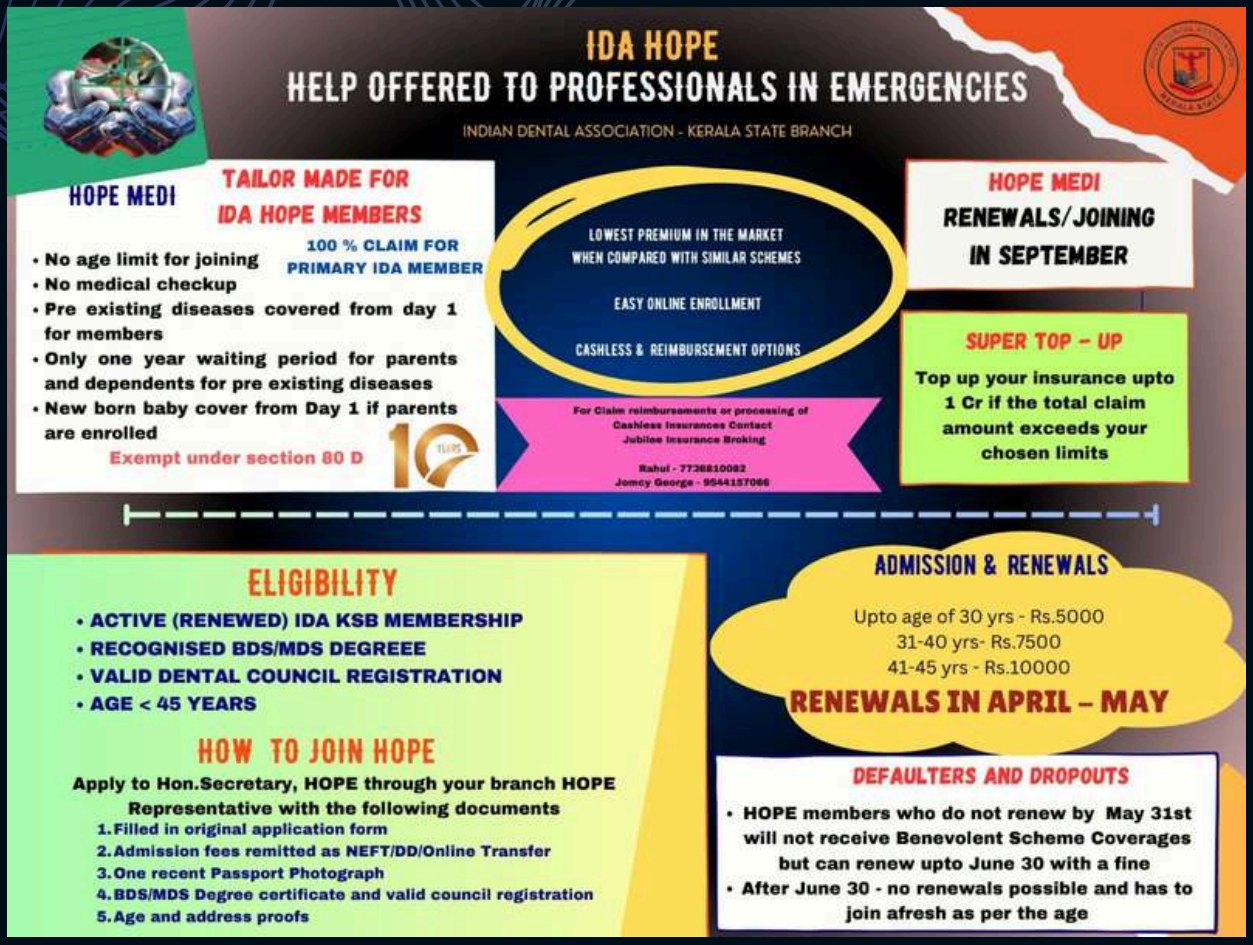
6.Gargiulo. A. W. & Grant, D.Aging changes in the periodontium. Illinois Dental Journal.1973.42:780-85.

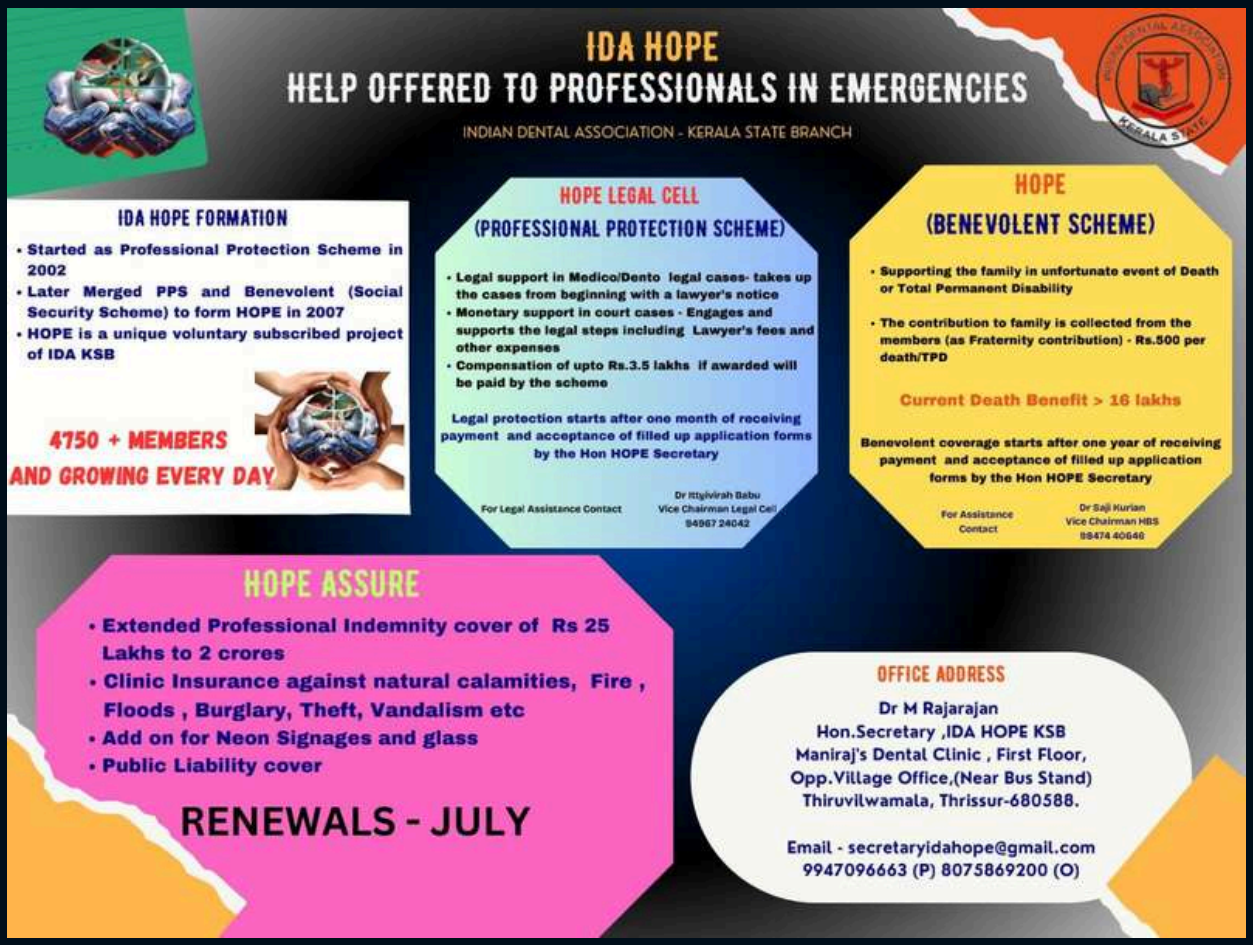
7.Gottlieb B.Der Fpithelansatz am Zahiie. Deutsehe Motttaschrifl fiir Zahnheilknnde.1921;39:142-47.

1.

2.

8.Gottlieb, B.Continuous deposition of cementum. Journal of the American Denial Association.1943;30:842-47.
9.Orban. B. & Kohler, .1.Die Physiologische Zahnileischtasche. Epithelansatz und Epitheltiefenwucherung. Zeitsehrift fiir Slomalologie.1924;22:353-425.
10.Manson, .1. D.Passive eruption. Denial I'raelitioner.1963;14: 2-9.
11.Loe, H.The structure and physiology of the dento-gingival junction. In Structural and Chentieal Organization of Teeth.1967; Vol. 11, ed. Miles, A. E. W., pp. 415-455. New York-Fondon: Academic Press.
12.Wentz FM, Maier AW, Orban B: Age changes and sex differences in older adults, J Periodontol .1952;23:13.
13.Grant. D. & Bernick. S. The periodontium of aging humans. Journal of Periodonlology.1972;43:660-67.
14.Goldman. H. M. & Cohen. D. W. {\97}) Periodontal Therapy. 5th ed.. p. 351. Saint Fouis: Mosby.
15.Sehluger. S., Yodelis, R. A. & Page. R. C. (1977) Periodonlal Disease. Basie Phettometta, Clinieal Managetnent, and Oeelusat and Restorative Interrelationships. 1st ed., p. 336. Philadelphia: Lea atul Febiger


IDA HOPE
HELP OFFERED TO PROFESSIONALS IN EMERGENCIES
INDIAN DENTAL ASSOCIATION - KERALA STATE BRANCH
HOPE MEDI
TAILOR MADE FOR IDA HOPE MEMBERS
100 % CLAIM FOR PRIMARY IDA MEMBER
• No age limit for joining
• No medical checkup
• Pre existing diseases covered from day 1 for members
• Only one year waiting period for parents and dependents for pre existing diseases
• New born baby cover from Day 1 if parents are enrolled
Exempt under section 80 D
LOWEST PREMIUM IN THE MARKET WHEN COMPARED WITH SIMILAR SCHEMES
EASY ONLINE ENROLLMENT
CASHLESS & REIMBURSEMENT OPTIONS
For Claim reimbursements or processing of Cashless Insurances Contact Jubilee Insurance Broking
Rahul - 7736810082
Jomcy George - 9544157066
HOPE MEDI
RENEWALS/JOINING IN SEPTEMBER
SUPER TOP – UP
Top up your insurance upto 1 Cr if the total claim amount exceeds your chosen limits
ELIGIBILITY
• ACTIVE (RENEWED) IDA KSB MEMBERSHIP
• RECOGNISED BDS/MDS DEGREEE
• VALID DENTAL COUNCIL REGISTRATION
• AGE < 45 YEARS
HOW TO JOIN HOPE
Apply to Hon.Secretary, HOPE through your branch HOPE Representative with the following documents
1. Filled in original application form
2. Admission fees remitted as NEFT/DD/Online Transfer
3. One recent Passport Photograph
4. BDS/MDS Degree certificate and valid council registration
5. Age and address proofs
ADMISSION & RENEWALS
Upto age of 30 yrs - Rs.5000
31-40 yrs- Rs.7500
41-45 yrs - Rs.10000
RENEWALS IN APRIL – MAY
DEFAULTERS AND DROPOUTS
• HOPE members who do not renew by May 31st will not receive Benevolent Scheme Coverages but can renew upto June 30 with a fine
• After June 30 - no renewals possible and has to join afresh as per the age


IDA HOPE
HELP OFFERED TO PROFESSIONALS IN EMERGENCIES
INDIAN DENTAL ASSOCIATION - KERALA STATE BRANCH
IDA HOPE FORMATION
• Started as Professional Protection Scheme in 2002
• Later Merged PPS and Benevolent (Social Security Scheme) to form HOPE in 2007
• HOPE is a unique voluntary subscribed project of IDA KSB
4750 + MEMBERS AND GROWING EVERY DAY
HOPE LEGAL CELL
(PROFESSIONAL PROTECTION SCHEME)
• Legal support in Medico/Dento legal cases- takes up the cases from beginning with a lawyer's notice
• Monetary support in court cases - Engages and supports the legal steps including Lawyer's fees and other expenses
• Compensation of upto Rs.3.5 lakhs if awarded will be paid by the scheme
Legal protection starts after one month of receiving payment and acceptance of filled up application forms by the Hon HOPE Secretary
For Legal Assistance Contact
Dr Ittyvirah Babu
Vice Chairman Legal Cell
94967 24042
HOPE
(BENEVOLENT SCHEME)
• Supporting the family in unfortunate event of Death or Total Permanent Disability
• The contribution to family is collected from the members (as Fraternity contribution) - Rs.500 per death/TPD
Current Death Benefit > 16 lakhs
Benevolent coverage starts after one year of receiving payment and acceptance of filled up application forms by the Hon HOPE Secretary
For Assistance Contact
Dr Saji Kurian
Vice Chairman HBS
98474 40646
HOPE ASSURE
• Extended Professional Indemnity cover of Rs 25 Lakhs to 2 crores
• Clinic Insurance against natural calamities, Fire , Floods , Burglary, Theft, Vandalism etc
• Add on for Neon Signages and glass
• Public Liability cover
RENEWALS - JULY
OFFICE ADDRESS
Dr M Rajarajan
Hon.Secretary ,IDA HOPE KSB
Maniraj's Dental Clinic , First Floor,
Opp.Village Office,(Near Bus Stand)
Thiruvilwamala, Thrissur-680588.
Email - secretaryidahope@gmail.com
9947096663 (P) 8075869200 (O)

JOURNAL GUIDELINES

Manuscript type : accepted are i) research ii) case report iii) review iv) short study

Article should be typed in times new roman size 12 A4 size paper. Use 1.5 spacing through out with a significant margin. Authors are advised to retain a soft copy for the reference and a soft copy of the article has to be sent to the editors email

Ethical consideration: manuscript submitted for publication must comply with the following ethical consideration. Written informed consent must be obtained from the subject before their data included in the study. Any data from the patient must be submitted by hiding their identity. All research should be carried out with prior approval from institutional or national ethic committee and should be in accordance with Helsinki declaration of 1964. If animals are used for research, the authors must follow the institutional or national guidelines for the care of use of laboratory animals

Manuscript format

Title : The title of the article should be concise, specific & informative

Authors : Name of the author with his/ her highest academic degree and institutional affiliation. Name address phone number and email address of the author and corresponding authors should be mentioned.The maximum number of authors for article is five.

Abstract : the abstract should not exceed 200 words. Below the abstract 3 to 10 key words in alphabetical order should be given. Abstract should contain the purpose of the study, materials and method, statistical analysis, results and conclusion.

Manuscript: For all the manuscript the word limit would be up to 3500 words excluding the references and abstract.

Tables should be self-explanatory, numbered in roman numbers, according to the order mentioned in the text.

Illustrations should be clearly numbered, each figure should be referred to the text, high quality digital images must be submitted in JPEG format.

Reference : References must be included and the bibliography should follow the vancouver format. The referencing should be numbered sequentially as superscripts in order of their appearance.

Copy right: while submitting the manuscript the authors has to make sure that the article submitted has not been published before .

All communications should be addressed to the Editor and addressed to:

Dr. Prameetha George Ittycheria MDS
Editor (IDA Thiruvalla Branch)
Ph:9495080021
Email.id: prameethageorgeittycheria@gamil.com