

Indian Dental Association Meghalaya State Branch



3rd MEGHALAYA STATE DENTAL CONFERENCE 2022

Theme: Oral health: "A mirror to general well being"

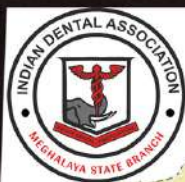
SOUVENIR



Venue: State Convention Centre, Shillong
Date: 9th - 10th December 2022

ida
Indian Dental Association

IDA Meghalaya going digital



idameghalaya.org

MacBook Pro

Contents

Page No.

A) Messages

a) Shri. James P.K. Sangma, Health Minister, Govt. of Meghalaya	i
b) Shri. D.P. Wahlang, Chief Secretary, Govt. of Meghalaya	ii
c) Shri. Sampath Kumar, IAS, Principal Secretary Health	iii
d) Dr. H.C. Lyndem, DHS	v
e) Prof. (Dr.) B.R. Bhuyan, President, Coordination Committee of IDA State Branches of NER	vi
f) Prof. (Dr.) J. Barman, Convener, Coordination Committee of IDA State Branches of NER	vii
h) MMSA President	viii
i) IDA President	ix
j) IDA General Secretary	x

B) Editor's desk

1

C) 3rd Meghalaya State Dental Conference Committee

2

D) Programme

4

E) Scientific Sessions

(i) Day 1 Lecture and hands on 1 (Dr. Adil Abdullah)	5
(ii) Day 1 Lecture and hands on 2 (Dr. H.S. Shreyas)	6
(iii) Day 2 Guest lecture 1 (Dr. S.M. Balaji)	7
(iv) Day 2 Guest Lecture 2 (Dr. Yashraj Bahadur)	8
(v) Day 2 Guest lecture 3 (Dr. Jogeshwar Barman)	9

F) Articles

a) Review of expenditure on Oral Health Care - Dr. L. Romita, BDS (RDC, Gau), MSc DPH (King's College London) DDPH (Royal College of Surgeons, England) D-72213, Germany.	10
b) Canine Exposure : Close Technique - Dr. Darimeka Kharbuli (MDS), Periodontics & Oral Implantology	17
c) Interdisciplinary Therapy in Orthodontics - Dr. Grate Suting, (SDM, Dharwad) MDS (DR ZADC AMU, Aligarh, UP) Consultant Orthodontist	24
d) Full Mouth Rehabilitation : A case report - Dr. Deborah Lalmingmawii Pachuau, BDS, MDS, (Prosthodontist & Implantologist)	37
e) Tobacco Cessation - Dr. Lana E. Lyngdoh Nongbri, State Nodal Officer (NOHP/NTCP), Meghalaya, Shillong	44
f) Immediate Implant Placement Pros & Cons	54

- Dr. Sauraj Dey, BDS (K.G.M.C Lucknow), FADI – USA
Joint Secretary, Indian Dental Association, Meghalaya

g.) Antibacterial mouthwash increases blood pressure : Fact or fiction? 58

- Dr. Stadialam Kharbuli, BDS (RDC), MDS (AMU)
Periodontist & Implantologist

G) IDA activities

a) CDE 64

b) CDH 68

H) Unwinding..... 71

I) Advertisements

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Minister,
Health & Family Welfare, Food,
Civil Supplies & Consumer Affairs,
Forest & Environment, Information &
Public Relations Law, Taxation,
Registration & Stamps Departments
Government of Meghalaya, Shillong



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MESSAGE

I am very glad to learn that the Indian Dental Association Meghalaya Chapter is bringing out a Souvenir as part of its 3rd Meghalaya State Dental Conference to be held on the 9th and 10th December, 2022.

The theme of the conference "Oral Health: A Mirror to General Well-being to General Well-being" is the most apt for the Conference. I am sure, this Conference would help in promoting high standards in Education and Research in the field of Dentistry. This Conference would also be bringing together the Dental Experts from all over the State of Meghalaya thereby facilitating peer learning and insightful interactions amongst the Dentists fraternity.

I extend my warm greetings to each and every member of the Association and wish the Conference a grand success.


James K. Sangma

Room No. 350, Yojana Bhavan, Meghalaya Civil Secretariat, Meghalaya, Shillong-793001

Shri. D.P. Wahlang, IAS
Chief Secretary
Government of Meghalaya



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MESSAGE

It is an immense pleasure to know that the Indian Dental Association will organize the 3rd Meghalaya State Dental Conference on the 9th and 10th of December, 2022 and a souvenir is being published with the theme "Oral Health: A Mirror to General Well being".

Dental healthcare can be achieved by continuous, consistent and innovative intervention. Provision of higher quality and safer care to patients is a matter of priority and should be accorded utmost importance.

I extend my sincere appreciation to the medical fraternity for their valuable services rendered to the people of the state, and hope that the deliberation during the conference could come up with ideas and action to deliver safe, consistently good, financially sustainable dental healthcare to all sections of society in the state.

I wish the Indian Dental Association Meghalaya State Branch and the conference a grand success.



(D.P. Wahlang)

SAMPATH KUMAR, IAS
PRINCIPAL SECRETARY
Government of Meghalaya



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MESSAGE

My warmest greetings and best wishes are extended to the members of Indian Dental Association Meghalaya, State Branch and I would like to congratulate the organizers of the 3rd Meghalaya State Dental Conference to be held on December 9 and 10, 2022

In itself, the theme "Oral Health: A Mirror of Overall Well-Being" is thought-provoking as oral health impacts overall health, medical costs and quality of life. Meghalaya is making intensive efforts to improve its critical development indicators like health, education and various other socio-economic indices. The importance of the mouth as part of our health is often overlooked and underestimated. However, many factors that affect our health, such as nutrition and hygiene, are controllable with the right habits.

Oral health is an important indicator of overall health, well-being and quality of life. The unhealthy habits prevalent among the youth in the state of Meghalaya are of concern, and immediate action is needed to address.

Tobacco use, drug abuse, and the consumption of betel nuts in the state are of concern. According to the Global Youth Tobacco Survey 2019 results, the prevalence of tobacco uses among children aged 13 to 15 years is 33.6%. Meghalaya has a prevalence of 47% adult tobacco users, according to the Global Adult Tobacco Survey 2016-17, and ranks 2nd nationally in smoking and 15th in smokeless tobacco use. The prevalence of smoking is 53.7% among adult men and 9.5% among adult women. Overall, 31.6% of all adults currently smoke tobacco. Overall, 11.6% of men, 29.1% of women, and 20.3% of all adults use smokeless tobacco.

Tobacco is known to be the leading preventable cause of death and disease worldwide. In India, over 13.5 lakh people die every year from tobacco-related diseases. Meghalaya reports more than 8000 tobacco-related deaths per year. We have the highest tobacco-related cancer rates in the country. 80% of oral cancer cases are attributed to tobacco. These unhealthy habits lead to the development of chronic diseases and oral cancer etc.

The State of Meghalaya is actively trying to reduce the number of cancer cases in the state. The Ministry of Health and Family Welfare has set out to implement the "Mission Cancer Prevention and Early Detection in Meghalaya" with the State Cancer Society of Meghalaya as the implementing agency in collaboration with the National Health Mission. The program also provides for the control of tobacco-related cancers, which are closely related to the improvement of oral hygiene

Therefore, it is important that young doctors are the main actors in raising awareness about healthy lifestyles and good oral hygiene among the public. It is important that good oral hygiene and a healthy diet are practiced from childhood to prevent dental problems that can affect the growth and development of each individual. It is my hope that through these conferences, visible progress will be made in our state that can raise awareness of this often-overlooked issue

I hope that this conference will provide a platform for discussions on current and future oral health challenges and how to improve them even further.

I wish this conference great success.



(Sampath Kumar, IAS)

Dr. H.C. Lyndem
Director of Health Services (MI)
Meghalaya, Shillong



MESSAGE

It is indeed a pleasure to know that the Indian Dental Association, Meghalaya State Branch is organizing 3rd Meghalaya State Dental Conference to be held on the 9th and 10th December, 2022. and is also bringing out a souvenir to mark the occasion.

The theme "Oral Health: A Mirror to General Well being" is most appropriate for the fact that.....

If your eyes are the window to your soul, then your mouth is mirror to your overall health and well being as Oral Health is integral to overall health."

Let each and every member be an advocate to spread the message on the importance of maintaining Oral Hygiene.

I wish the Conference a Grand Success.

A handwritten signature in blue ink, appearing to read 'H. Lyndem'.

Dr. H.C. Lyndem
Director of Health Services (MI)
Meghalaya, Shillong

Prof. (Dr.) B.R. Bhuyan
Founder Principal, Regional Dental College, Guwahati
President, Coordination Committee of IDA State Branches of NER



MESSAGE

Dear Dental Surgeons of the North East Region,

I am happy to learn that the Meghalaya State Branch of the Indian Dental Association is organizing its Third State Dental Conference on 9th and 10th of December, 2022 in Shillong.

I feel very happy to see that numbers of dentists in the north east States have been increasing and it is because of that the seven sisters are now having their own State branches of Indian Dental Association. Until recently, the Regional Dental College, Guwahati was the only Dental Institution in the entire north east India which could produce a few numbers of dental surgeons every year. So it was not an easy task to reach majority of the population of this region to raise awareness regarding the importance of dental and oral health in maintenance of general health and wellbeing. I am happy to know that a few new Dental Colleges are coming up in the region and more than 100 students from Assam and other north east States are also graduating in dentistry from outside the region every year. Thus, it gives me immense pleasure when I see that my vision to make the people of this region aware regarding the need of dental education and importance of Dental and oral health and also spread this awareness to all the remote areas of the north east region is going to be fulfilled. Indian Dental Association is also acting as a forerunner in this regards by organizing many outreach public health dental programs together with updating the dental fraternity to abreast with the recent advances in Dentistry by organizing CDE programs and Dental Conferences.

I am delighted that the Meghalaya State Branch of Indian Dental Association in doing a very good job. The branch had organized the 7th North East Regional Dental Conference in the recent past very successfully. I congratulate all the members of the IDA, Meghalaya State Branch for organizing the 3rd Meghalaya State Dental Conference and I am sure that the untiring efforts of the organizing committee will make this conference a memorable experience for every delegate.

I wish all-round success of the conference.

B. R. Bhuyan
(B.R. Bhuyan)

Prof. (Dr.) J. Barman
Convener
Coordination Committee of IDA State Branches of NER



MESSAGE

Warm greetings to all!

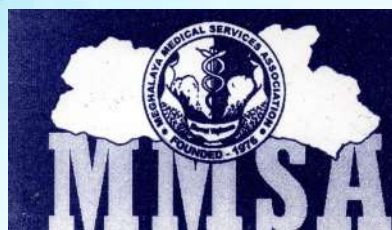
I am happy to note that the Meghalaya State Branch of Indian Dental Association is organizing the 3rd Meghalaya State Dental Conference in Shillong on 9th and 10th December, 2022. I am hopeful that this conference will facilitate all the dental surgeons of the State to unite under one umbrella to exchange their knowledge and understanding to keep them abreast with the recent development in Dental Science & technology and related novel treatment protocol and also to make new friendship with the professional colleagues.

I am also happy to learn that an excellent blend of luminary speakers and academicians are participating in the conference to share their wisdom and experience in various topics to make this event a truly exhilarating and learning experience to all the delegates.

I am confident that members of the organizing committee will put their efforts together to make this conference a memorable one for all the participants. I take this opportunity to extend my heartiest compliments to the organizers and participants of the conference and wish the conference a grand success.



(J. Barman)



MEGHALAYA MEDICAL SERVICES ASSOCIATION

Regd. No. SR/MMSA-19/77 of 1977

H.Q.Shillong

MESSAGE

At the outset we congratulate the Meghalaya State Branch of the India Dental Association, for organizing the 3rd Meghalaya State Dental Conference. We are aware the conference is a culmination of accurate planning and hard work put by the organizing committee. We believe that this is the platform upon which eminent speakers will deliberate on cutting edge advances in clinical dentistry which will benefit practicing dentists from both the Government and private entity. As rightly mentioned in the theme of the conference "Oral Health: a mirror to General Wellbeing", it is befitting to mention that oral health is as vital a link as are other systemic aspects of allopathic medicine in the chain of achieving overall health and wellbeing. Also we hope that the conference will deliver ways and means of improving access to Oral Health in the rural landscape of our state. Nonetheless, this is a platform to socialize and build strong bond amongst the members of the association and participating delegates.

We extend our best wishes to the members of the Indian Dental Association, Meghalaya State Branch, and we wish the 3rd Meghalaya State Dental Conference grand success.

Dr. Y.A. Phira
President, MMSA

Dr. R. Pohsnem
General Secretary, MMSA

Email:mmsadocs@gmail.com

Dr. Nathaniel Kharumnuid
President Indian Dental Association (IDA)
Meghalaya State Branch
President Meghalaya State Dental Council
Member to the Dental Council of India (under 3 e)
Sub Committee Member Tobacco Cessation Dental Council of India



MESSAGE

Greetings to all my dear friends and colleagues,

On behalf of IDA Meghalaya State Branch, I would like to express my sincere thanks to all my seniors colleagues and friends who have spared their valuable time to come together to organize the 3rd State Dental Conference 2022, Shillong.

IDA Meghalaya State Branch was started on August 17 2006 which was initiated by Col. Dr. Darekar.

Since then our organization has been organizing a number of CDH and CDE program in our state which has created awareness as to how we can maintain a good oral hygiene among the general public including school children and knowledge of certain oral diseases which could be acquired through bad oral habits and hygiene and also as a Dental Practitioner we have been able to update our practices with modern technology and knowledge.

As we all know in the past two years the corona virus pandemic has forced us to cancel all our usual CDH and CDE programs.

In this year as we are back to normal we as EC members of IDA Meghalaya take the opportunity to organize the 3rd State Dental Conference 2022 so that once again we as a Dental Fraternity can gather knowledge and update ourself in our day to day practices.

A sincere and humble request to all our Dental Fraternity to come together to this conference and make it a grand success.

As our Motto States "Oral Health, A mirror to general wellbeing"

With these few words I wish this conference a grand success.

Dr. Freddie Kharmawlong
General Secretary
Indian Dental Association (IDA)
Meghalaya State Branch



MESSAGE

Dear colleagues and friends,

Greetings to you all from the office of IDA Meghalaya.

At the beginning, it gives me great pleasure to welcome you all to the 3rd Meghalaya State Dental Conference 2022, with the theme "*Oral Health : a mirror to general well being*". I sincerely hope that you will have a great time during the conference and gain immense knowledge and skills through the various lectures and hands on that will be delivered by the esteemed speakers, who will enlighten us with their expertise in their respective subjects.

It has been four years since our last state conference that was held on 6th October, 2018 at City Hut Dhaba, Shillong, and after a break due to the pandemic, we could have our state conference again due to the support of all the members of our association.

IDA Meghalaya State Branch was formed on the 17th August 2006, and on the 17th & 18th October 2011, we were able to host the North East Conference which was a big success.

IDA Meghalaya has been conducting numerous CDEs since its inception, through which all its members have gained knowledge and skills that keep evolving and improving with each new day.

IDA Meghalaya also has been contributing to the school children in particular and to the society as a whole through various CDHs that were conducted every year. Through these CDHs, dental awareness programs and dental screening programs are organised and free toothbrushes and toothpastes along with medicines are given. I would like to take this opportunity to express my gratitude to all those members who have been giving their selfless service through the numerous CDHs that we could have organised till date.

Lastly, I would also like to thank all the Executive Members of IDA Meghalaya and all the members who have greatly contributed to the success of this Conference. I also thank all our sponsors who have helped us in organising this Conference, and also to our esteemed Speakers who had spared their valuable time to be with us in this Conference.

With these words, I wish the 3rd Meghalaya State Dental Conference a grand success.

Thank You
Khublei Shibun
Mitela

Dr. Freddie Kharmawlong



From the Editor's Desk.....



Greetings everyone!!!

I on behalf of IDA Meghalaya branch extend a warm welcome to everybody.

A lot has happened since the time we had met last on 6th Oct 2018. The pandemic years of 2020-2021 took a toll on all of us either directly or indirectly. Time seemed to have stood still and a possibility of holding a conference or CDE programmes seemed a far cry.

Thankfully the worst is over and indeed feels good to be back. Technology did keep us connected in the virtual world but personally I missed interacting with our fraternity. I realized (as m sure everybody else did too) the importance of this platform that we share, not only to learn and excel but also to meet friends and colleagues sit and laugh together. I recall post pandemic when protocols relaxed and few of us met for an informal dinner. It was an emotional evening catching up on how each of us battled the pandemic in our own way. Human touch is so important and no "Face Time" can replace that.

Slowly with vaccines coming in things improved and we started having our IDA activities, CDE and CDH programmes. It was not enough. We wanted a conference and so after several EC meetings, we decided to organize the 3rd Meghalaya State Conference 2022.

The pandemic taught us the importance of being healthy and that starts with good oral health. Thus, the theme for our conference Oral Health: "A Mirror To General Well being"

A souvenir is being published to commemorate the event. Therefore I take this opportunity to thank all our well wishers for their encouraging messages, doctors for contributing articles, guest speakers, participants and above all the souvenir team and our publishing house Vanrica Printing Press.

Last but not the least, I need to mention here that after doing editorial work for the last couple of years and also from my days of blogging it was my dream to see IDA Meghalaya on a digital platform. I would like to specially thank our executive members for supporting and giving me a free hand to work on it.

IDA Meghalaya is finally going digital.

I also need to thank Masstech, our digital partners for helping us get this website on the floor. It is still in its initial stage and we do have a lot of work left but nevertheless it's on the way.

Now IDA Meghalaya is just a click away for you to surf or register yourself.

Website : idameghalaya.org

With these few words I wish our Conference a grand success.

Thankyou

Khublei Shibun

Mitela

Dr. N.D.Mawrie

3rd Meghalaya State Dental Conference Committee

1) ORGANIZING COMMITTEE:



Organizing Chairman:
Dr. Nathaniel Kharumnuid



Organizing Secretary:
Dr Freddie Kharmawlong

Members:
Dr Vijay Singh,
Dr Lana Lyngdoh,
Dr Kyrpang Passah,
Dr Sauraj Dey

2) SCIENTIFIC COMMITTEE:



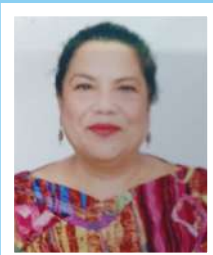
Chairperson:
Dr Alice Lyngdoh



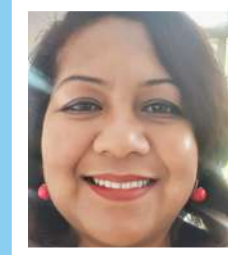
Convener:
Dr. Moonraj Lyngdoh

Members:
Dr Lana Lyngdoh,
Dr Grate Suting,
Dr Darimeka Kharbuli,
Dr Andrea S Lyngdoh,
Dr Deborah Pachauau,
Dr Barilangki Bamon

3) SOUVENIR COMMITTEE:



Chairperson:
Dr.Verinia G Mawlong



Convener:
Dr N.D.Mawrie

Members:
Dr Sailesh Pradhan,
Dr B.Purkayastha,
Dr. Niewkor Warjri

4) RECEPTION COMMITTEE



Organizing Chairman:
Dr. Bibiana Kanti



Organizing Secretary:
Dr Barinia Tariang

Members:

**Dr Neelakshi Choudhary,
Dr Medarisha Nongrum,
Dr Shanaj I Dkhar,
Dr Lariker Lyngdoh,
Dr. Dolvicia Laloo Swet**

5) REGISTRATION COMMITTEE:



Chairperson:
Dr. Idaiasuklang Tiewsoh



Convener:
Dr Pearl Rumnong

Members:

**Dr Rimaatre Bareh,
Dr Daphi L Mukhim,
Dr Maya L Laloo,
Dr Neiniroi Thangkiew**

6) TRADE FAIR COMMITTEE



Chairperson:
Dr Kyrpang Passah



Convener:
Dr Sauraj Dey

Members:

**Dr Lumbor Mawsoor,
Dr Namsarang Momin,
Dr Prasenjit Chakraborty**

PROGRAMME

9/12/2022

- 8AM : FLAG HOISTING
- 8AM-9.30 AM : BREAKFAST AND REGISTRATION
- 9.30AM : LECTURE (HANDS ON-1) “ANTERIOR AESTHETIC REDEFINED” BY DR. ADIL ABDULLA
- 11AM : INAUGURATION AND OPENING OF TRADE FAIR
- 12.15PM : HANDS ON-1
- 1.30PM : LUNCH
- 2.30PM : LECTURE (HANDS ON-2) “ENDO RETREATMENT AND BROKEN FILE RETRIEVAL” BY DR. H.S. SHREYAS
- 3.30PM : HANDS ON -2

LIGHT REFRESHMENT

10/12/2022

- 8AM : BREAKFAST
- 9.30AM : GUEST LECTURE-1
“JOURNEY FROM A DENTAL SURGEON TO A CRANIOFACIAL SURGEON”
BY DR. S.M. BALAJI
- 11.30AM : GUEST LECTURE - 2
“DIGITAL DENTISTRY-CONVERGED TECHNOLOGIES”
BY DR. YASH RAJ BAHADUR
- 1.00PM : LUNCH
- 2.00PM : GUEST LECTURE-3
“FULL MOUTH REHABILITATION SIMPLIFIED”
BY DR. JOGESWAR BARMAN
- 5.00PM : GALA DINNER

LIVE BAND AND DJ NIGHT



DR. ADIL ABDULLA

CURRICULUM VITAE

Dr.Adil completed his Bachelors in Dental Surgery in the year 2010 from Rajiv Gandhi University of Health Sciences, Bangalore. He took up Advanced Training in Product Management and Material Science from Shofu Dental Asia Pacific Training Centre in Malaysia, To add to his clinical skills Dr Adil also Completed Certification Courses in Oral Implantology and Orthodontics.

He served as a full time Dental Practitioner in various Dental Hospitals across Bangalore and has worked as a medical specialist for 2 years under a prominent health firm. He has also worked as a Product Specialist under Shofu Dental Asia Pacific- Singapore Branch for more then 3 years and is currently working as Product Manager & In-House KOL under Shofu Dental India.

Dr.Adil was invited as Guest Lecturer in various programs Nationally like WDS, IDA State conferences, Faculty in Technical platforms at conferences and PG conventions, he had Also conducted various training programmes for Dentists, Dental hygienists, Technicians & Marketing Staff throughout India and done various presentations on Dental Material Science & Technology and their clinical applications.

Topic

Anterior Aesthetics Redefined

Composites being the current trend in the modern Dentistry this program showcase a different tool for an effortless composite restoration starting from Diamond points to Rotary abrasives, including conventional composite selections and the technique for the anterior layering considering the polychromatic criteria.

This program will also Acquaint to a wide range of world's best abrasives systems for composite to bring the lustre and beauty to the restoration with maintaining the harmony, life & Life Like appearance.



Dr. H. S. Shreyas

Microscopic Dentist

Silver Member of International Microscopic Dental Club

Opinion leader and product advisor for Redapple. India

After graduating from JSS dental college in 2012 worked as a private practitioner at Malabar Multispeciality hospitals Calicut. Over 10 years of clinical experience in restorative endodontic and general dentistry.

Completed fellowship in Aesthetic dentistry at ENCODE Mumbai conducted by Dr Sandesh Mayekar and Style italiano certified course by Dr Ajay Juneja Dubai.

Later trained extensively in Microscopic Dentistry at Italy Microscopic Dental club. Practices exclusive Microscopic dentistry since 2019 and went on to become a SILVER Member of International Microscopic Dental Club.

Has conducted many workshops and one on one Microscope aided courses in rubber dam isolation, composites and endodontics at his private clinic.

Presently a product advisor and consultant for Redapple company.

Course Content

Broken Instrument retrieval Lecture & Demo

1. Introduction to Endo Retreatment
2. Case Selection
3. Analysis to broken fragment
4. Retrieval using loop device
5. Alternate methods
6. Precautions for avoiding file breakage



Prof. Dr. S.M. Balaji, is an Oral and Cranio-Maxillofacial Surgeon from Chennai, India. He is the Director-Consultant of Balaji Dental and Craniofacial Hospital, which is a globally renowned center for cranio-maxillofacial deformity correction surgery.

He is the current Editor-in-Chief of the Annals of Maxillofacial Surgery (AMS), a pubmed indexed journal and Executive Editor of Indian Journal of Dental Research (IJDR). He is the Executive VicePresident of the International College of Continuing Dental Education (ICCDE). He is the PastPresident of the International College of Dentists (ICD) India, Sri Lanka & Nepal Section, Immediate Past President of International Association of Dental

Research-Asia Pacific region (IADR-APR) and President of IADR STAR network.

Prof. S.M. Balaji is the author of “*The Textbook on Oral and Maxillofacial Surgery*.” Published by Elsevier, it is currently the country’s best seller and the prescribed book used by undergraduate and post graduate students alike. His recently released book on ‘*Clinical Cranio Maxillofacial Surgery*’ is a compendium of surgical cases from his thirty plus years of specialty practice, which has seen him perform many innovations to standard surgical procedures, thus improving them manifold times. Of great significance is the fact that this book is authored by a single individual, which is a rarity in the world of medical textbooks.

To his credit he has received numerous awards including the prestigious Dr BC Roy National Award, the highest of the Medical Council of India. An acclaimed speaker at National and international conferences, he has received Dr Ginwallah Trophy, the highest of the Association of Oral and Maxillofacial Surgeons of India twice. He has won various best scientific research awards including the ‘Modus Award of Merit – a cash award of 50,000 Yen’ for the Best Innovative Surgical Technique at the 6th Asian Maxillofacial Conference, Tokyo.

He has also delivered various orations including the prestigious Dr. MS Ginwallah Oration, the highest oration of Association of Oral and Maxillofacial Surgeons of India and the highly esteemed Dr. R Ahmed Oration, the highest Oration of the Indian Dental Association. He has also represented the nation at various International forums including the ADA, FDI and IADR.

He was awarded the highest scientific “Prof. David Precious Award” for his scientific research presentation in protein guided tissue regeneration procedures for repair of orofacial clefts at the 12th World Cleft and Craniofacial Congress held in Leipzig, Germany. This award comes with a cash prize of US \$1000. He received the award from the world renowned craniomaxillofacial surgeon, Prof. Kenneth Salyer, President, International Cleft Lip and Palate Foundation.

At present, he is the Honorary Consultant Maxillofacial Surgeon to Victoria Hospital, Republic of Seychelles; Indira Gandhi Memorial Hospital, Republic of Maldives; Jawaharlal Nehru Hospital, Republic of Mauritius.

Dr. S. M. Balaji, M.D.S., MFDS RCPS(Glasg)., FDS RCPS(Glasg)., Ph.D., D.Sc(Hon).,
Director & Consultant Cranio-Maxillofacial Surgeon
Balaji Dental & Craniofacial Hospital
No. 30, K.B. Dasan Road,
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Ph : +91-44-42947222
Email : smbalaji@gmail.com
Web : smbalaji.com



Dr. Yash Raj Bahadur

Ph - 9015574165

- Completed BDS in 2009 from IDST, Modinagar and then JR ship at Hindu Rao Hospital
- Completed MDS in Orthodontics in 2014 from IDS, Bareilly.
- Worked as a Sr. Lecturer at Seema Dental College, Rishikesh for a brief stint before starting a dedicated clinical Orthodontics practice for Clove Dental for almost 4 years.
- Later joined Dentsply Sirona as the Product Specialist for North India and has been taking care of Equipment, Restorative, Endodontic and Aligners portfolio
- Throughout his career he has published numerous national and international publications under his name
- Has been updating his knowledge regarding the various advancements in dentistry on a regular basis such as CAD/CAM, CBCT etc
- Has a keen interest in Aligners as Orthodontics has been his passion since entering dentistry
- Has been training Doctors on the use of CAD/CAM, CBCTs, Dental Lasers and Aligners since becoming a part of Dentsply Sirona

Digital Dentistry – Converged technologies

Digital dentistry is an expansive term for all technologies and devices utilizing software, hardware, or other computational components to examine, diagnose, and treat patients, more quickly and effectively than the mechanical or electrical options previously available. This rise in advanced digital technology has enhanced dental procedures' efficiency and accuracy, bringing with it more consistent and predictable clinical outcomes. This is possible due to the advent of the following:

1. Digital Impressions
2. CAD/CAM
3. CBCTs

The advent of the above has made it a possibility to carry out procedures such as

1. Prosthetic Driven Implant Planning
2. Integrated Implant workflows
3. Artificial Intelligence Driven restorative designs
4. SuresmileAligners – Integrated planning with CBCT & Intra oral Scan
5. Both Chairside and Lab-side solutions

These procedures not only make treatments more predictable but also more convenient for patients as well as doctors.



Keynote Speaker:

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Title: Full Mouth Rehabilitation simplified

Abstract:

Functional and esthetic rehabilitation of worn-out dentition presents a great clinical challenge. Many factors need to be evaluated for proper diagnosis and formulating a comprehensive treatment planning. Clinicians should have thorough knowledge and understanding about the health and disorder/disease conditions of all the biological attributes of the stomatognathic system including the determinants of occlusion, occlusal interferences, and related occlusal and orthopedic instabilities leading to worn-out dentition. Insufficient interocclusal clearance is another major challenge to accommodate esthetically pleasing and functionally sustainable restorations.

Several concepts have been recommended and most of them are conventional and time consuming having multiple clinical and laboratorial steps. Recent incorporation of digital technology in making impressions and uses of digital work flow for designing and fabricating the restorations of choice by subtractive /additive technology may reduce the clinical and laboratorial work burdens. However, these technological advances are not freely available and affordable to cater the need for huge population of developing country like us. Combination of conventional and digital approaches is also showing predictable results. The ultimate long term esthetic and functional success of full mouth restoration of decimated dentition depends on developing an organic occlusion which can restore the health and comfort of the stomatognathic system and maintain the general health and quality of life of the individual as well.

This presentation provides an insight to a systematic approach for full mouth rehabilitation to be executed based on history, diagnosis and treatment planning.

REVIEW OF EXPENDITURE ON ORAL HEALTH CARE

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ORAL HEALTH: Definition, System and its Function: The Oral Health care systems function to meet a **social need** of 'Good Oral Health' or 'A Healthy Oral Condition'.

As stated by *Shieham et al* (1982), "Any assessment of health state should include functional and social dimension." It is the same when assessing the oral health conditions. These dimensions in the context of oral health are referred as **socio-dental indicators**.

The treatments covered by the oral health care systems range from a simple dental-carries management and restoration to correcting oro-dental anomalies like cleft palate etc. The oral health care system requires funds to function. It is the society and its policy makers who decide on what, where how and how much of the funds are to be utilized in which ways.

The assessment of expenditure on treatment needs should study and analyze the **functional and social dimension** of the oral health diseases and its problems. They should assess the social and motivational factors which predispose people towards dental ill health and influence the effectiveness of treatment and health promotion (Sheiham et al, 1998).

The measures to assess for dental needs should have the following aspects: (Aubrey S, G T, 2007, community oral health, pg 64)

- A **clinical dimension** based upon sound concepts of the life history of the disease.
- **Measures of social dysfunction.**
- The **perceived need** of the individual.
- Assessment of the **propensity** of the individual to take preventive action and the perceived barriers to prevention.
- A prescription of **effective and acceptable treatments.**
- **Assessment of the skills and manpower** required.

OHRQoL – indicators: (ORAL HEALTH RELATED QUALITY OF LIFE INDICATORS)

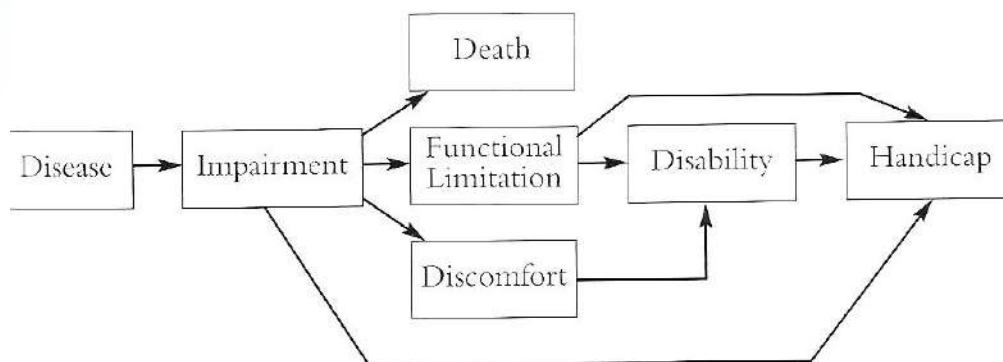
Bio-psychological model of health proposes that "Diseases are influenced not only by the underlying pathology but also by the individual's perceptions, personality and stress."

These are subjective indicators. Their use should complement the clinical measures of oral status and needs. (Cushing et al 1986; Locker & Jokovic 1996).

Locker 1998 created a framework based on the WHO model for international classification of impairments, disabilities and handicaps, where:

- All pathologies are associated with impairment, but not all impairments lead to functional limitations.
- Functional limitations are expected in the body/organ/system.
- Disability limits the capacity to perform tasks in a socially acceptable manner.
- Handicap is multidimensional and involves loss of opportunity, actual material, and social deprivation & dissatisfaction.

Figure 1: The conceptual model of consequences of oral impacts (modified from Locker, 1988)



(Source: Community oral health, chapter 4, page 65, Aubrey S, Georgios T)

The OHRQoL indicators are predominantly subjective and constantly evolving. They are influenced by the social, cultural, political contexts, in which they are measured (Locker, 1997). Therefore, **clinical status and multiple social & psychological dimensions** should be assessed simultaneously when assessing an individual's '**Dental Needs**'.

Evolving ORAL DISEASE Patterns and its implications

It has been noted worldwide that oral disease pattern has changed and is evolving in different ways. The demographic factors like mortality rates, life expectancy period, birth-rates etc have become favorable; they in turn have influenced the evolvement of oral-dental disease patterns. (Source: Community oral health, Chapter 3, pg 56, Paul Erik Peterson)

Figure 2: Principle Factors involved in changing oral disease patterns worldwide.

The younger age groups have far lower oral disease than their older generation. There is wide reporting of decline in the prevalence of caries in children and adolescents over the past 30 years. The causative factor

for the improvement occurred around the late 1960's and early 1970's. **Water fluoridation** has proved to be the most effective and cost-effective public health measure for control of dental caries. **Fluoride toothpaste** has equally established its effectiveness.

As mentioned in the chapter of “oral health care services”,

1. ‘Issues like early loss of first molars have led to crowding, whereby the extraction of sound premolar is carried out to achieve a satisfactory appearance.’
2. ‘Increased use of medications in the elderly effect the salivary flow, which in turn increases the oral health problems, and then the necessary skill and management, is required.’

DENTAL - CARIES

Dental caries is now largely a disease affecting the disadvantaged sector of society. The cost of treatment of dental caries comprises a large proportion of the total budget for the dental services even in the most established market economies.

There is increasing evidence that the caries levels have declined in the developed countries in the past 20-30 years. Yet there continues to be a **large “at risk” group** for whom dental caries remains a major problem (Pitts, 1988). The lower socio-economic groups have reported a higher level of dental caries consistently.

PERIODONTAL DISEASES

- The population strategy is applied worldwide for prevention of periodontal disease, focused on personal effective and atraumatic plaque control.
- In this field, dental hygienist is capable of managing the majority of the cases.
- The evolving dental science now stresses its attention to the co-relation of systemic conditions and the periodontal diseases, like the effects diabetes has on the individual's periodontal structures etc. (Esmonde C, chapter 9b, community oral health, 2nd Ed)

ORAL CANCER

- Oral cancer has seen no improvement in survival over the decades.
- There is very low-level of public awareness on oral cancer and its determinants.
- It is a public health problem; screening for this disease has yet to be formally and systematically evaluated.
- There is lot of work to be done in this area. Alcohol consumption, tobacco use, beetle nut chewing is some of the leading cause factors. (Martin D, ch 9c, community oral health, 2nd Ed)

DENTAL TRAUMA

Dental trauma is more common during the childhood phase of an individual. Its prevalence incidentally is high. No increase in the number of people affected. Often emergency services for dental trauma are inadequate. Health programs and education at schools may reduce the cases of dental trauma. (Ulf G & Lars A, 2007)

DEVELOPMENTAL ENAMEL DEFECTS

Developmental enamel defects and its data are important to be collected for minimizing and identifying factors which induce these changes in appearance. So a need for a standardized methodology persists. (Terry W C et al, 2007)

MALOCCLUSIONS

No research evidence has been found so far to link poor oral health with malocclusion. Receiving orthodontic treatment may be determined by the consumer/provider factor. Universal index – IOTN (index for orthodontic treatment needed) has been in use with not much avail, another index ICON has been developed to meet the outcome and complexity of orthodontic treatment needs. (William C S & Elizabeth A T, 2007)

DENTAL EROSIONS

There is little data available on the population trends in the field of dental-erosions or tooth-wear. Certain comparative studies in UK give no suggestion as to rise in this problem. (Rebecca M & David B, 2007)

ORAL HEALTH CARE PROVIDERS; SYSTEMS & PERSONNELS

- To achieve and maintain the target of a **healthy oral condition**, successful treatment result relies on 1. Professional intervention and 2. Patient attitude and behavior.
- The **socio-dental** approach in needs assessment focuses on achieving the optimal benefit from available resources.
- People that are more likely to benefit from treatment should be given a higher priority in comparison those less likely to benefit. (Maizels et al, 1993)
- Oral health promoting concepts and preventive measures hold the greatest potential for drastically reducing the diseases. The need for stressing the point to practice are Use of **fluorides**, Frequency of **tooth-brushing**, **Sugar intake** and Pattern of **dental attendance**

All factors influence oral health status and the treatment outcomes in a positive manner. (Aubrey S & Georgios T, 2007)

- Sackett & Snow (1979) cautioned that strategies applied to change compliance behavior must meet three conditions
 - a) Diagnosis must be correct
 - b) The therapy must do more good than harm
 - c) The patient is an informed, willing partner in the execution of all interventions.
- Treatments which are professionally judged to be needed for a specific impairment should be evaluated for effectiveness. Consideration of dental treatment effectiveness should be based on investigation. (Sheiham et al, 2007)
- If interventions are of unproven efficacy or are doing more harm than good, decision makers must ensure that they are stopped. (Muir & Gray, 1997.” Stop starting them and start stopping them”).
- Health policy makers should not solely base their decision on effectiveness- by textbooks or on the basis of individual studies; they should conduct systematic reviews as well.

- It's an era of evidence-based health care practice and the evaluations of variety of dental care interventions are available. They should be looked into before deciding on the expenditure on a health care budget for a population.
- The issue of substitutes of dentists with a cheaper option and the criteria of skill mix work force should be considered.

Evidence based dentistry is the concept underlying at every level of socio-dental system of treatment needs assessment as described:

(Source: pg. 74, Community oral health, chapter 4, Oral health needs assessment, Aubrey S & Georgios T, 2007)

Fig-3 Levels of dental treatment needs and relevant key factors.

Dental Need Level	Key Factors
Normative need	✓ Clinical Impairment ✓ General health status
Impact- Related need	✓ Clinical Impairment ✓ General health status ✓ Perceived Oral health impacts and needs
Propensity- Related need	✓ Clinical Impairment ✓ General health status ✓ Perceived Oral health impacts and needs ✓ Behavioral propensity for treatment

* Evidence based treatment is a factor considers throughout the socio dental system.

THE FUNDING AGENCIES & THEIR SUPPORT SYSTEM

The system shows the way money goes into the system. The common approach for **consumers** is

- a) Government reserve/specific taxation
- b) Insurance/prepayment premiums (individually and/or by the employer.
- c) Direct payments by the individual.

And for the **provider** reimbursement including remuneration is the mechanism of getting paid:

1. Fee for service
2. Capitation
3. Contract
4. Salary

The funding body is able to support the oral health care sector on the basis of Information, Education and Probity. (Reference: unit 3: Oral health care services)

INFORMATION: It should provide the detail of the dental disease in picture. The data related to the activities carried out in the specific dental problem should be available. The management details also should be accessible. The target of the system should be to reduce the need for treatment. There are various databanks functioning which provides data on dental diseases/conditions:

- WHO Model where caries data is available at a Swedish site and periodontal data at the Japanese site.
- UK study model. BASCD (British association for study of community dental health).
- National surveys of various countries.

EDUCATION: All organizations require an appropriate skilled work force. The most contentious issue in oral-health care sector is skill-mix. Ideally a spectrum of skills, the particular mix to suit the disease profile should be trained and selected. The education and training of this work force is both time and money consuming and needs to be planned well.

PROBITY: It's the **honest accountability** of the activities of a system. It covers the following four components.

- Accuracy of the claim
- Carrying out treatment to a satisfactory standard
- Assessment of the quality of diagnosis and treatment planning
- Limitations and conditions of “terms of service”.

CONCLUSION:

1. The reviewing of expenditure should have a **socio-dental approach** for assessment of oral health based on:

- Clinical estimates of normative need
- General health status
- Subjective perceptions
- Propensity to adopt health promotion behaviors
- Scientific evidence of the effectiveness of treatments

2. The decline in prevalence of dental caries has had a negative impact on the future public financing. “Industrialized countries show 50% of children 5-12yrs have never experienced dental caries, it is difficult to imagine any other circumstance when 50% of population suffering a disease would evoke such an aura of successes.” (Bowen & Tabak, 1992) Dental caries is still a problem among the deprived and poor. Efforts to prevent dental caries must continue. Oral-cancer is a public health issue and needs further research. Dental first-aid for trauma should be made widely available. Tooth wear treatment can be complicating and time consuming, as well as bears financial implication in terms of service.

3. There are five actions which enhance health system and its providers:
 - a- creating supportive environment
 - b- building healthy public policies
 - c- strengthening community action
 - d- developing personal skills
 - e- reorienting health services
4. The nature of financing, the mechanism of reimbursement, degree of cost sharing interacts with individual socio-economical state and influences **equity and efficiency** of the **oral health care system**.

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TITLE : CANINE EXPOSURE: CLOSE TECHNIQUE

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Abstract: The maxillary canines are the most commonly impacted permanent teeth after the third molar with a prevalence of approximately 2% of the population. Impacted canines are usually seen in the palatal side approximating almost 85% of the total cases which often require orthodontic guidance in the eruption. Canine exposure often leads to a compromised keratinized gingiva, an adequate amount of keratinized gingiva is a fundamental requirement for periodontal health. The present case report demonstrates the need of both periodontal and orthodontic treatment in the management of impacted canine using fixed appliance and closed surgical technique for stimulation of physiological eruption of the impacted canine.

Key words:

Impacted canine, periodontal surgery, attached gingiva, close eruption technique.

INTRODUCTION

Impacted tooth can be defined as a tooth that fails to erupt into the dental arch within a specific time period. The maxillary and mandibular third molars are the most commonly impacted teeth due to their long development time¹. The maxillary canine is the second most frequently impacted tooth (0.9 - 2%)², as it is one of the last teeth to erupt into the arch. Reasons are attributed to lack of space, tooth-arch size, retained deciduous teeth and the mal-aligned adjacent teeth. Systemic factors such as genetic disorders, endocrine deficiencies and previous irradiation of the jaws also have been suggested to play a pivot role³. The canine is one of the most important tooth not only for occlusion but for most importantly for aesthetics as it is known as the “corner stone” of the dental arch.

Surgical exposure and orthodontic management of impacted canines have been used to bring impacted teeth into occlusion. The following case report highlights the combination of both periodontal and orthodontic management of an unerupted maxillary permanent right canine (13). The primary goal of surgery is to provide accessibility for the placement of an attachment commonly known as an orthodontic button. Presently, two surgical approaches are employed for exposure of impacted maxillary canines:

- Open eruption technique
- Closed eruption technique

In this case report, close eruption technique had been performed as this technique preserves maximum amount of keratinized gingiva which is very much essential for periodontal health when compared to the open eruption technique.

CASE PRESENTATION

A 22year old female reported to the Department of Orthodontics, Regional Dental College (Assam), which a chief complain of crowded teeth on the mandibular anterior region and retained maxillary canine (Figure: 1)



Figure:1

On clinical examination its was found that the patient has Angle's Class I malocclusion with retained maxillary canines. On palpation a slight bulge was felt around 12-13 region buccally as well on the 22-23 region which was barely seen clinically and there was no bulge palatally (Figure: 1)

On radiographic examination (IOPAR, CBCT) it was seen that 13 and 23 is impacted and aligned in a mesio-labial direction. (Figure: 2)

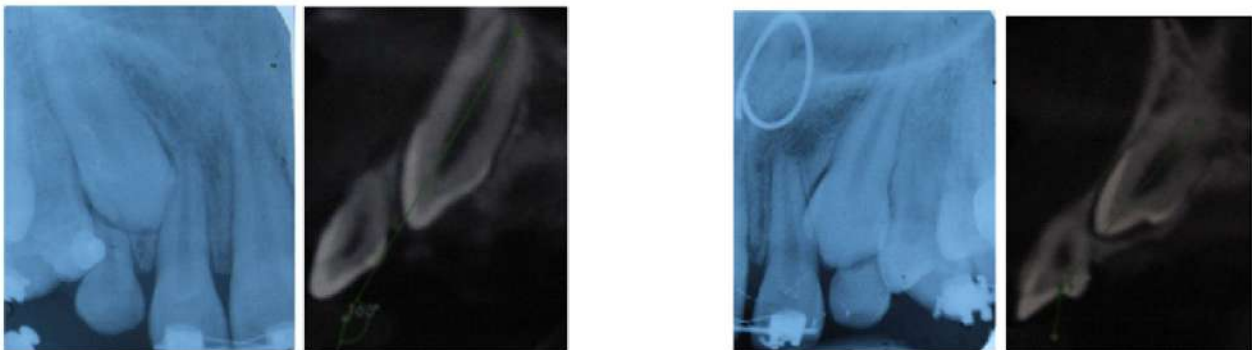


Figure: 2

PROVISIONAL DIAGNOSIS

Angle's class I malocclusion

INVESTIGATIONS

- Orthopantomograph (OPG), (Figure: 2)
- Lateral cephalogram (Figure: 2)

FINAL DIAGNOSIS

Angle's class I malocclusion with impacted maxillary permanent canines in a mesio-buccal direction.

PROCEDURE

The 22-23 region was locally anesthetized and extraction of the retained deciduous canine was preformed (Figure: 3) followed by a crestal incision, a full thickness flap was raised from 22 to 24 region and 23 was exposed. (Figure: 4) This was followed by placement of orthodontic button using light cure composite resin, a Begg's bracket was attached to the orthodontic button for guiding the impacted canine into occlusion. The flap was then repositioned back to original position and sutured. (Figure: 5). The patient was recalled after 7 days for removal of the sutures.



Figure: 3



Figure: 4



Figure: 5

The patient was recalled after 3 months (Figure: 6) and 6 months respectively. (Figure: 7)



Figure: 6



Figure: 7

DISCUSSION

Maxillary permanent canines play a pivot role for an attractive smile, also essential for a normal and functional occlusion, hence extraction of the impacted canine is not indicated unless it poses some complications. Impacted permanent maxillary canine occur in 1-2% of the population, which are palatally placed in 85% of the cases and 15% labially. There are two theories which have been proposed to explain the etiology of impacted canine;

- The guidance theory which states that maxillary canines develop high in the maxilla, are among the last teeth to develop and they have the longest and most complicated eruption path as compared to all the teeth.
- The genetic theory focuses on genetic causes & other dental abnormalities⁴.

Accurate localization and diagnosis of the impacted canine is critical in determining the proper access for the surgical approach and direction of orthodontic force. Clinical examination may reveal lack of a canine bulge in the labial sulcus, an over retained deciduous canine, absence of mobility of deciduous canine, mal-aligned or over retroclined (rotated) lateral incisors, and malpositioned central incisor⁴.

Bringing of an impacted maxillary canine into the oral cavity should not be the only primary goal or concern in the management protocol. The aim should be focus on attaining a proper occlusion, maintaining or preserving a healthy zone of attached gingiva and an adequate alveolar bone height for supporting the canine when erupted.

A horizontally impacted canine is considered more problematic because of the following reasons⁵:

- Unfavourable route of eruption
- High anchorage requirements
- More chances to lose its vitality

A wide array of treatment options was proposed for impacted canines, which are as follows⁶:

- Surgical exposure only
- Combination of surgical exposure and orthodontic tooth movement
- Surgical transplantation

The surgical management can be done in two ways:

- Open eruption technique
- Closed eruption technique

Closed eruption technique is a method of choice for very high, labially placed maxillary canines. The open eruption technique had been associated with more unaesthetic appearance, owing to an increased clinical crown length, decreased width of attached tissue, gingival scarring and intrusive relapse. SL Pathirage *et al.*, (2016)⁴

Londheet *et al.*, (2014)⁷ compared the open and closed eruption techniques in management of labially impacted maxillary canines and drew the following conclusions:

- The surgical procedure was longer in closed technique as compared to open technique
- Postoperative pain experienced by patients was similar, but regression of pain was faster in closed eruption technique
- The recovery period with the closed technique was significantly less than the open technique
- The total duration of orthodontic treatment depends on the level of impaction, deeper the impaction longer the duration of treatment
- Canines managed with closed method had better periodontal health compared to canines managed with open method

The complications that may arise from surgical and orthodontic management are nonvital pulps, ankylosis and root resorption and the periodontal complications are gingival recession, delay in periodontal healing, gingivitis, bone loss and decrease in the width of keratinised gingiva. But these periodontal complications can be reduced by raising the crevicular full-thickness triangular apical repositioned flap for exposing the impacted tooth and covering the tooth and attachment with the maximum amount of attached gingiva, which was performed in the present case^{8,9}.

CONCLUSION

An interdisciplinary approach for the management of impacted canine will lead to resolution of both orthodontic tooth movement and achieving acceptable aesthetic along with a desired amount of attached gingiva.

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FIGURES



Figure: 1



Figure:2 (a & b)



Figure: 3

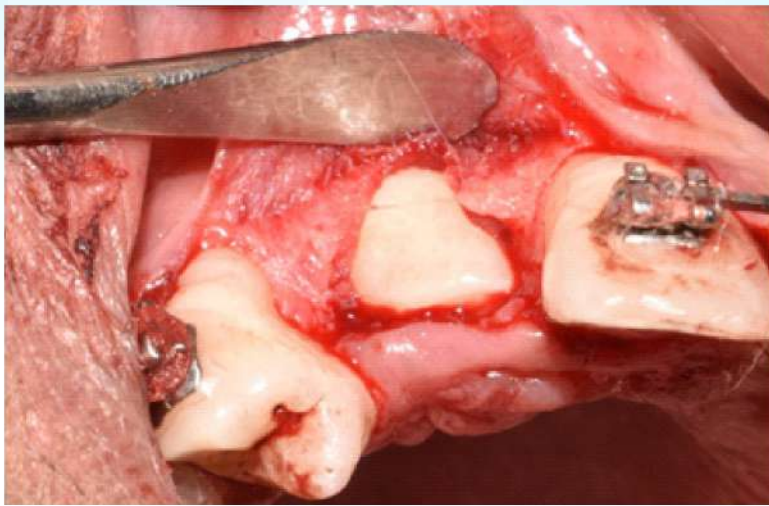


Figure: 5

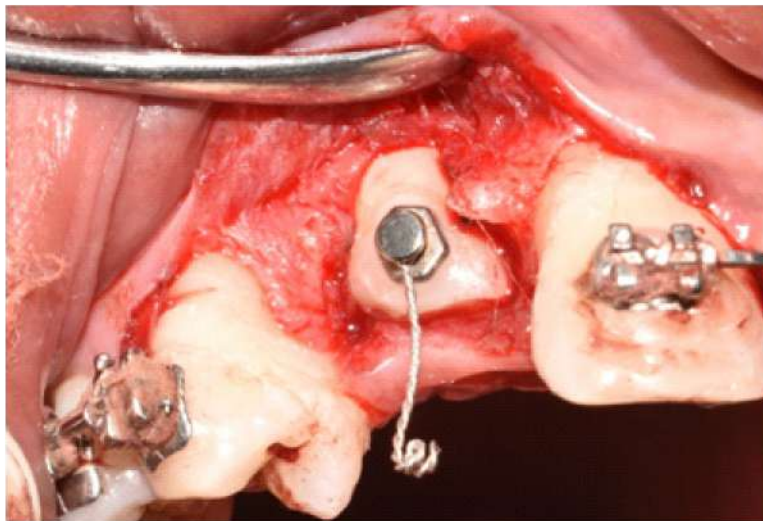


Figure: 6

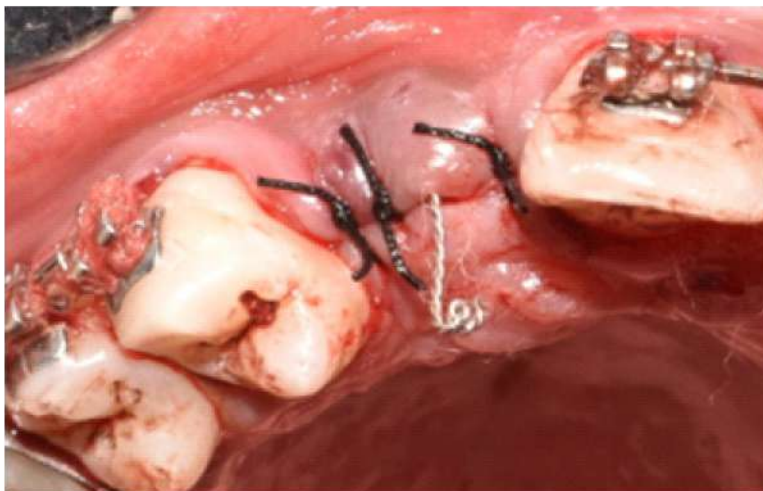


Figure: 7

Interdisciplinary Therapy in Orthodontics

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Introduction

In recent times, awareness about the benefits of a healthy and aesthetically pleasing dentition has significantly increased. Our knowledge of dental diseases and methods available to restore the mutilated dentition has also leapt exponentially. Over the past two decades, there has been a paradigm shift in the approach to treatment planning for dental patients. The practice of dentistry is changing from a single specialist or general dentist treating the patient to that of a team approach. This team approach enables the utilisation of skills and expertise of clinicians of different specialities. This joint care of a patient's dental needs is defined as inter-disciplinary treatment.

Inter-disciplinary approach is imperative for patients with mutilated dentition. It is also invaluable for adult patients. The mutilated dentition is observed in patients who have had dental disease(s) and often did not receive any form of preventive or interceptive therapy. As a result, their teeth are often malposed, periodontally compromised, extensively worn or abraded and poorly restored. Patients with congenital defects also benefit from interdisciplinary care as it idealises the dentition to an aesthetically and functionally acceptable result.

Objectives of inter-disciplinary treatment

- Idealise and streamline therapy
- Avoid unnecessary procedures
- Decrease treatment time
- Boost individual team members' result
- Improve prognosis
- Enhance professional relationships
- Increase satisfaction of both patient and doctor.

Establish Organized Approach to Diagnostic and Treatment Planning Process

The goal of the diagnostic process in an interdisciplinary treatment is to produce a comprehensive but concise list of patient's problems and to incorporate various treatment options into a plan that gives maximum benefit to the patient.

In diagnosis and treatment planning, the dentist should:

1. Recognize the various elements of malocclusion contributing to the development of a problem starting from patient's history, clinical examination, and analysis of diagnostic records (study models, full mouth radiographs, and facial and intraoral photographs [Figure 1])

2. Have comprehensive knowledge of different disciplines of dentistry to generate the pertinent data other than orthodontics
3. Finally, define the nature of the problem to design a treatment strategy based on the specific needs and desires of the patient [Figure 2].

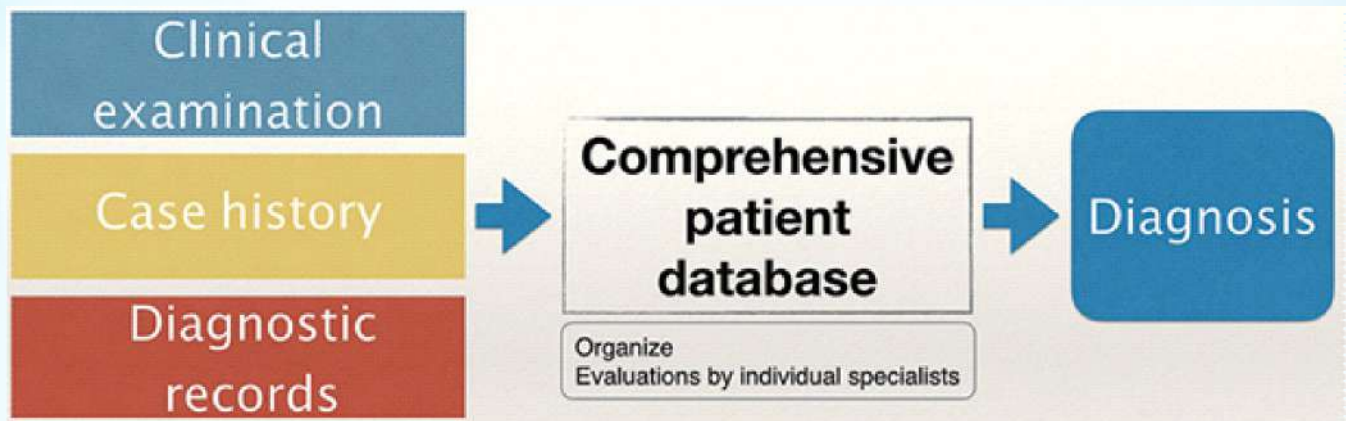


Figure 1: Diagnostic process

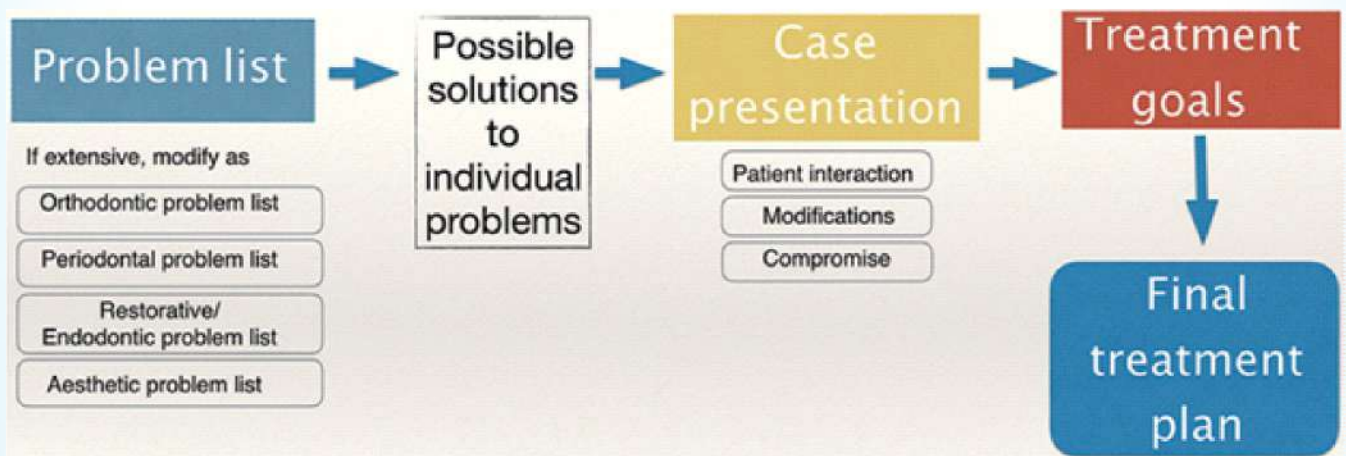


Figure 2: Organized approach to a final treatment plan

Conditions commonly treated with inter-disciplinary care:

1. Periodontally compromised dentition - Gingival discrepancies
 - i. Anterior aesthetic zone
 - ii. Vertical maxillary excess or deficiency
2. Missing teeth/ space management
 - i. Tooth agenesis
 - ii. Extracted teeth
3. Teeth malformation
 - i. Single teeth
 - ii. Multiple teeth
4. Trauma from occlusion

5. Fractured tooth
6. Congenital defects
7. Transmigrated teeth
8. Impacted teeth
9. Muco-gingival discrepancies
10. Severe jaw discrepancies

Pre-restorative/pre-orthodontic periodontal status

A healthy periodontium is a foundation for a stable dentition, therefore, the success of any inter-disciplinary treatment is dependent upon sound periodontal treatment planning. The first phase of treatment always involves a thorough periodontal work up. The initial therapy is directed towards the control of aetiological factors such as plaque, sub-gingival calculus and occlusal trauma. A re-evaluation is made in 3 months to evaluate the prognosis of individual teeth. After initial therapy, the patient is assessed for tissue response to determine whether the periodontium is stable enough to proceed with restorative and/or orthodontic treatment. Areas of minimally attached gingiva are evaluated and grafted before initiating any restorative or orthodontic treatment.

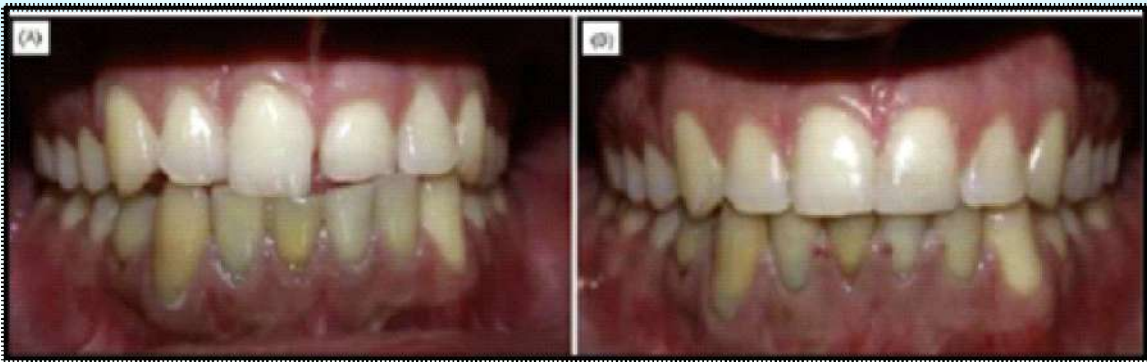
From an orthodontic standpoint, teeth that are to be proclined are at a greater risk of gingival recession. In addition, teeth with prominent roots are at a higher risk of recession through mechanical and toothbrush trauma. An individualised periodontal maintenance regimen is determined for the patient at the re-evaluation visit, maintained during treatment and in the subsequent phase.



Figure No. 3: Periodontally Compromised Dentition

Gingival discrepancies

The relative level of the gingival margins of the six maxillary anterior teeth has a significant influence on the aesthetic appearance. Combined orthodontic and periodontal procedures can be used to establish the proper levels of the gingival margins. A sulcular depth of greater than 1 mm may necessitate gingival surgery to create more ideal gingival health and architecture. In other cases, orthodontics may help in the establishment of ideal gingival architecture. Intrusion or extrusion of teeth allows for the movement of gingival margin in the direction of the orthodontic movement. Accordingly, abraded teeth may have to be intruded or extruded relative to each other to correct gingival height discrepancies in the anterior aesthetic zone (Fig. 4 A–B).



(A) Frontal view of dentition showing poor anterior aesthetics due to gingival margin discrepancies. Fractured and over erupted maxillary left central incisors. (B) Restored maxillary left incisor using orthodontic intrusion and composite bonding.

Open gingival embrasures

The presence of a papilla between the anterior teeth is a key aesthetic factor in any individual. The lack of a papilla leads to an open gingival embrasure or a black triangle between the teeth. These are extremely unsightly and difficult to resolve with periodontal therapy.

Black triangles are present due to one of the three factors:

1. Tooth shape
2. Root angulation
3. Periodontal bone loss.

Periodontal regenerative therapy can be attempted to re-establish inter-dental papilla, but it does not have great success. The problem can be tackled by orthodontic correction of root angulation and reshaping of interproximal areas of teeth with conical crowns.

Subsequent space closure often helps to close open gingival embrasures.

Frenal attachments

Frenal attachments that cause mobility or blanching of the marginal tissue should be treated prior to or before the completion of orthodontic therapy.

With extremely large diastemas (6-8mm) in the early transitional dentition a frenectomy is usually recommended to facilitate space closure, regain space at the midline & prevent ectopic eruption of the lateral incisors & canines.



Fig 5 Frenectomy

Trauma from occlusion:

When the occlusal force exceeds the adaptive capacity of the tissues, tissue-injury occurs. The resultant injury is termed trauma from occlusion. It may be primary or secondary trauma from occlusion.

Management includes:

- a. Reversible approach: Management of parafunctional habits through patient's education & the use of occlusal splints
- b. Irreversible approach: Assessment for the needs of this approach is done after initial phase therapy and the first recall visit.
 1. Selective grinding
 2. Orthodontic therapy
 3. Temporary or provisional splinting of mobile teeth
 4. Occlusal reconstruction
 5. Extraction of selected teeth

Careful occlusal assessment and management of the inflammatory processes should be conducted before occlusal adjustment is carried out.

Missing teeth/space management

Tooth agenesis

Mandibular second premolars rank highest as the most common congenitally missing tooth followed by the maxillary lateral incisor, except the third molars. In cases where the mandibular second premolars are missing and the primary second molars are present, it is often possible to maintain the latter for a long term.

The patients who have a congenitally missing lateral incisor seek treatment in the dental office at a relatively young age. This is because the spacing is associated with the maxillary anterior aesthetic zone (Fig. 6A–B). These cases may often have maxillary canines erupting in the space for the maxillary lateral incisors. Occasionally, canine impactions may also occur. The presence of the lateral incisor is a guide to the direction of eruption for the permanent canines.

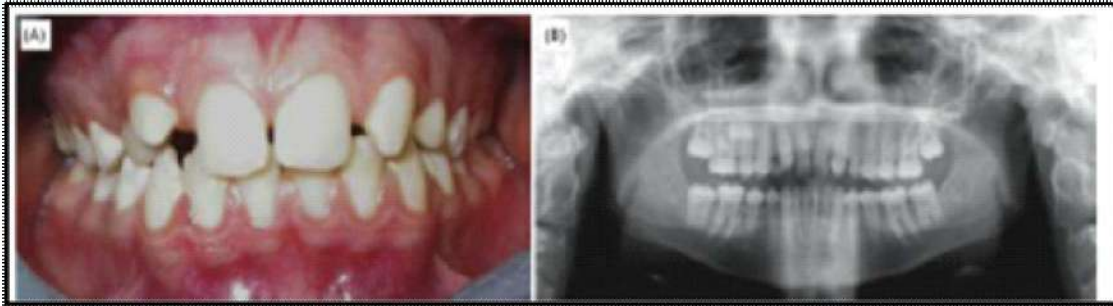


Fig 6(A) Frontal view of the dentition. (B) Panoramic radiograph of a patient with congenitally missing maxillary lateral incisors. Note the mesially erupting permanent canines in the position of the maxillary lateral incisors.



Fig 7 Congenitally Missing Lateral Incisors

Two common treatment options for the treatment of congenitally missing lateral incisors include:

- Space opening for restorative replacement of the missing lateral
- Space closure.

Orthodontic space closure.

Space closure followed by esthetic reshaping of the canine to lateral incisor. To establish an ideal gingival relationship between the central incisor and the canine in the lateral incisor site, the latter may require slight extrusion. This is important particularly in patients with high smile line. Often due to a slight darker shade of the canine relative to the adjacent incisors, bleaching or veneering of the canine may be required.

Space maintenance and rehabilitation.

Opening up the space for the prosthetic replacement of the missing lateral can be accomplished by distalising the canine into Class I relationship with the opposing canine. *Spear FM* (1997) was in favor of the opinion that the ideal replacement for missing teeth is an implant, provided all factors are favorable. The amount of space required for the implant placement is determined and created accordingly with orthodontic treatment. Space evaluation is of importance especially between the roots and at the level of the crowns to ensure successful crown placement. The implant is placed when the vertical growth of the patient is completed,

usually 14-15 years of age in girls and 16-17 years of age in boys. Prosthetic replacement can also be planned with a Maryland bridge or a pontic on a retainer as convenient for the patient.



Figure 8: Orthodontic mechanics to open the space (a), adequate intra coronal space (b), inadequate space between the roots of central incisor and canine as seen radiographically (c)

Extracted teeth

Extraction: Many a times in our clinical practice we do come across patients seeking for treatment of edentulous region with the teeth being missing over an extended periods of time (Fig. 9). Such a situation is inevitably associated with a shifting and tipping of the individual dental units, changes in the cant of the occlusal plane and a functional shifts as a result of alteration in the equilibrium of the dentition.

Two common treatment options include:

- i. *Orthodontic closure of the edentulous space:* This treatment option depends entirely on the general occlusion, crowding, available anchorage and the patient's facial profile.
- ii. *Prosthetic replacement:* Tipped teeth may be included in the design of a partial prosthesis such as telescopic crowns, a ring clasp or a reverse action clasp for a removable partial prosthesis, endodontic treatment and crowns for supra-erupted teeth, etc. However, what one should remember is that the tipped teeth are not the best abutment either for a fixed or a removable prosthesis on account of the occlusal forces which are not directed along the long axis of the tipped teeth and the three-walled bony defects often seen on the side of the tip and also supra-eruption of teeth in the opposing arch along the edentulous site may interfere with an ideal prosthetic replacement of the missing teeth (Figure No. 9b).

Orthodontics is also used to intrude supra-erupted teeth and re-establish the correct occlusal plane. Such procedures may simplify the restorative treatment.



Figure No. 9a: Edentulous Space i.r.t. 36 and 46 with History of Extraction done



Figure No. 9b: Supra-eruption of 16 and 17 over the Edentulous Space i.r.t. 46 and 36 respectively

The current standard of care involves orthodontic treatment along with restorative treatment. The correct axial inclination of tipped teeth is established by orthodontics (Fig. 10A–B). This improves the periodontal prognosis and long-term maintenance of the tooth. It also improves access to the restorative dentist to idealise the subsequent fixed or removable prosthesis. It ensures achievement of ideal interproximal embrasure form.



FIGURE 10 (A) Pre-treatment intraoral photographs of a patient with a mutilated dentition showing deep bite, missing mandibular left second premolar and first molar, space between the mandibular right first and second premolars. Lingual occlusal view is showing congenitally missing mandibular incisor. (B) Post-treatment photographs showing an uprighted mandibular left second molar, improved anterior overbite and space gained.

Malformed teeth

Single or multiple malformed teeth

One of the most common malformations observed is the peg-shaped maxillary lateral incisor (Fig. 11A). The patient often presents with aesthetic discrepancies of the anterior region including uneven space distribution and a midline deviation. The size and shape of the malformed tooth need restorative care, but prior to any restorative care, space distribution has to be established. If sufficient space exists, a composite restoration or a ceramic veneer may be done to establish ideal results. However, in most patients, both the space distribution and occlusion are not ideal for restorative treatment. Space has to be matched to the size of the contralateral incisor. The bite also has to be corrected to an ideal overbite and overjet by orthodontic means (Fig. 11B). Adult case with spacing in upper anterior region treated with fixed orthodontic appliance followed by restorative treatment is shown in Fig. 11.



Figure 11(A) Pre-treatment intraoral photographs of a patient showing peg-shaped and malformed incisors.
(B) Orthodontically aligned dentition with composite veneers on maxillary anterior teeth.

Fractured teeth

Teeth fractured above the gingival margin can be readily restored with a cast or prefabricated post. However, teeth fractured below the gingival margin may encroach on the biological width and create a significant restorative challenge. The latter has three treatment options open to it:

- a. Extraction of the fractured tooth followed by prosthetic replacement.
- a. Periodontal surgery aided restorative reconstruction of the fractured tooth: Periodontal surgery can reposition the gingival margin to an appropriate level to expose the sound tooth structure for restorative reconstruction of the tooth.
- b. Orthodontic therapy aided restorative reconstruction of the fractured tooth: Orthodontic extrusion of the root portion to an appropriate level for subsequent restorative care (Figure 12).



Figure12: Endodontic Treatment of Fractured 11

The last two options are dependent on the length of the root portion within the bone, the root shape and form and the periodontal health of the concerned tooth.

Ortho-Endo relationship

- All acute and chronic endodontic lesions should be dealt with at least 3 months prior to any orthodontic treatment.
- The presence of a periapical infection will be painful & difficult to orthodontically move a tooth with an active or recently repaired lesion.
- Use of light intermittent forces to reduce damage to the dental tissues & provide time for possible repair is recommended.
- Endodontically treated teeth can be moved orthodontically as readily as teeth with vital pulps.
- *If teeth require **RCT** during orthodontic treatment, it is recommended that the root canals be cleaned, shaped & an interim dressing of calcium hydroxide be placed. Canal obturation is accomplished upon the completion of orthodontic tooth movement.*
- The early application of orthodontic forces after surgical endodontic treatment markedly delayed the healing process & the specific cause was identified as tooth mobility
- Forced eruption of a tooth provides both a sound tissue margin for ultimate restoration & creates a periodontal environment that will be easy for the patient to maintain.
- Orthodontically extruded tooth must be stabilized for 8-12 weeks prior to fabrication of a permanent post & core.

Orthodontics-Pedodontics Relationship

Special needs children's behaviour is often problematic because of reduced understanding & increased apprehension, short attention span, & limited tolerance and they may require special attention.

- Under General anaesthesia impressions are taken, brackets are bonded & bands placed.
- A no mix adhesive & GIC cement are used.

- Extractions are carried out following bonding.
- Behaviour management techniques, such as “Tell, Show, Do”, & positive & negative reinforcement should be considered.
- Conscious sedation, deep intravenous sedation, or the use of GA.

Ortho-Surgery relationship

In the non-growing adult patient, it is often impossible to achieve a significant improvement in facial esthetics and are relatively unstable when treated with orthodontics alone. They are much more amenable to a combined orthognathic approach.

- Usually the lower 3rd molars are more frequently enucleated & the upper 3rd molars are waited until it erupts into the oral cavity.
- The third molars should be extracted atleast 6 months prior to the orthognathic procedure to allow for adequate time for bone healing & repair.
- Levelling the accentuated curve of spee of the mandibular arch must be based on the desired final face height. Levelling the maxillary arch should be done only within each segment & then the segments are levelled at surgery.
- The finishing stage of orthodontics can be started 2-4 weeks post surgery and should be finished within 6 monthstime.

Ortho-Prosthodontic relationship

An occlusion that cannot be maintained & is unstable will fail. Lack of stability is exemplified by some or all of the following:-

- 1) Excessive wear
- 2) Excessive mobility
- 3) Migration
- 4) Extrusion
- 5) Periodontal breakdown &
- 6) Discomfort in the condyles with concomitant occluso-muscular problems.

The goal of combined orthodontic prosthodontics approach is to provide a stable & maintainable occlusion.

Indications of preprosthetic orthodontic treatment

- Uprighting of abutment teeth.
- Establishment of proper pontic spaces.
- Leveling of the occlusal plane.
- Correction of extruded, tipped or rotated teeth.
- Overjet and overbite correction.
- To correct root positioning to create proper embrasure form.

Surgical exposure of impacted tooth:

As per Kuftinec and Shapira, impaction is a condition in which a tooth is embedded in the alveolus so that its eruption is impeded and it is locked in position by bone and by adjacent teeth (Figure No. 13). Apart from the third molars, the teeth in decreasing order found to be impacted are maxillary canines, second premolars, maxillary central incisors and the mandibular canines. Joe Rebellato (2003) reported a case of palatally impacted, ectopically erupting upper right canine treated with surgical exposure and traction of a palatally impacted maxillary canine, full orthodontic appliance treatment, and cosmetic periodontal procedures. Through a team approach the patient was successfully provided with an excellent esthetic and functional result.



Fig13: Surgical Exposure of Impacted 13

Conclusion:

Many a times, in our dental practice, patient's care involves a multidisciplinary treatment approach. A thorough examination of the patient's chief complaint and treatment demands should be done. It is important that the orthodontist together with the other specialists frame a treatment objectives which are realistic and meet the needs of the patient. Communication can happen by several means - electronic or verbal, but team conferences and meetings in person are usually the most effective. Such meetings can be scheduled at regular intervals to discuss treatment progress of patients. Constant interaction and communication among the team members and the patient at all level of treatment are the keys to the success of the interdisciplinary treatment.

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FULL MOUTH REHABILITATION : A CASE REPORT

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Restoration of the severely worn dentition is one of the most challenging procedures in dentistry. In order to successfully restore and maintain the teeth, one must gain insight into how the teeth arrived at this state of destruction. Tooth wear can result from abrasion, attrition, and erosion. Research has shown that these wear mechanisms rarely act alone and there is nearly always a combination of the processes.

As teeth are worn, the alveolar bone undergoes an adaptive process and compensates for the loss of tooth structure to maintain the VDO. Evaluation and diagnosis should account for the patient's diet, history of eating and/or gastric disorders, along with the present state of the occlusion. Emphasis must be placed on the evaluation of occlusal prematurities preventing condylar seating into the centric relation position. Behavioural factors that may contribute to parafunctional habits and/or nocturnal bruxism are also important to understand and manage in order to successfully restore and maintain a healthier dentition. Once a complete understanding of the etiology of the dentition's present state is appreciated, a treatment plan can be formulated, taking into account the number of teeth to be treated, condylar position, space availability, the vertical dimension of occlusion (VDO), and the choice of restorative material. While all occlusions wear to some degree over the lifetime of the patient, normal physiological wear usually does not require correction. Severe or excessive wear refers to tooth destruction that requires restorative intervention. Severe attritional wear can result from occlusal prematurities that prevent functional or parafunctional movements of the jaw. This wear can be seen at the site of the prematurity or on the anterior teeth as a result of the "hit and slide" forward. Restoration of the worn anterior teeth then becomes a challenge as space availability for prosthetics becomes limited. Understanding what determines the VDO and the effects of altering it have on the temporomandibular joint (TMJ), muscle comfort, bite force, speech, and long-term occlusal stability are prerequisites to restoring the worn dentition.

Vertical dimension is developed by the balance of ramus growth and tooth eruption and is affected by the repetitive contracted length of the elevator muscles during growth and development. It is, therefore, generally measured by a point on the maxilla and a point on the mandible at the area of first molars. Often, due to posterior prematurities the muscles of mastication are in a state of imbalance and will close the mandible in a position that is not in alignment with centric relation due to accommodation of the teeth. This position is usually forward of centric relation (Figure 1). Clinical examination of this condition will reveal anterior tooth wear with minimal posterior wear. When the condyles are seated in the centric relation position and the teeth come together, the posterior teeth act as a fulcrum that prevents the anterior teeth from touching (Figure 2). This anterior separation may provide enough space for the clinician to restore the aesthetic requirements of tooth length while maintaining a position that allows restoration of maximum intercuspation in conjunction with centric relation. When starting from a centric relation position, opening of the anterior teeth by 3 mm will yield a posterior separation of approximately 1 mm and stretch the masseter muscle length approximately 1 mm. If the condyles are not in centric relation and are subsequently seated to a more superior position, every millimetre of vertical seating will reduce the masseter muscle length by 1 mm, thereby eliminating the need for a true opening of vertical dimension. The following case presentation demonstrates a means to obtain the space required for the restoration of severely worn dentition without altering the VDO

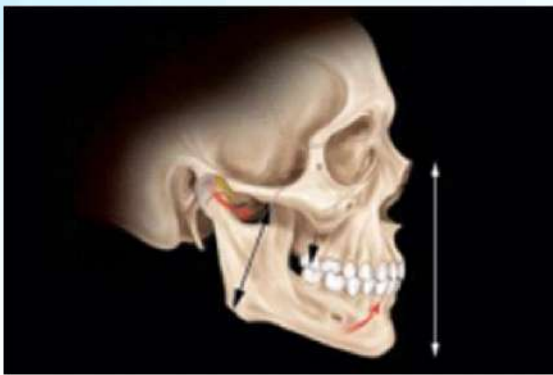


Figure 1. Posterior prematurities can cause the mandible to close in a position forward of centric relation.

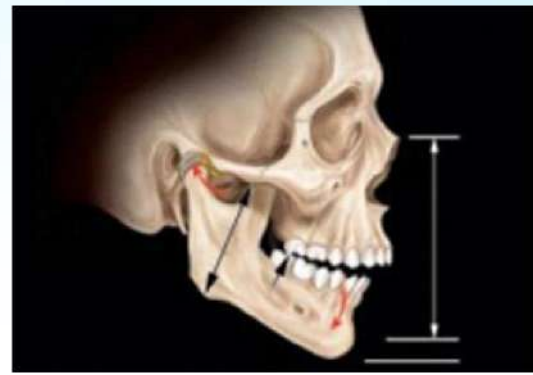


Figure 2. When the condyles are seated in centric relation, posterior teeth act as a fulcrum to prevent contact with the anterior teeth.

Case Presentation

A 71-year-old male patient presented with the chief complaint of tooth wear and difficulty in chewing since 10 years (Figure 3). Clinical examination revealed severely worn anterior posterior teeth. Advanced abrasion and or erosion were present. Extra oral examination revealed no facial asymmetry or muscle tenderness but decrease in facial height. The temporomandibular joints, the muscles of mastication were asymptomatic with normal mandibular movements. Intra oral examination revealed: partially edentulous mandibular arch with missing teeth in relation to 17,46; severely worn teeth and loss of vertical dimension; generalized attrition and erosion; deep bite and anterior guidance was lost. In order to properly diagnose the case, a comprehensive examination was conducted, inclusive of a full mouth radiographic series (Figure 4), caries detection, and periodontal probing. Evaluation of the TMJs was unremarkable, with normal jaw opening and range of motion. No joint sounds, signs or symptoms of instability were evident. Joint loading in centric relation was performed utilizing bimanual manipulation and a leaf gauge. Both methods resulted in no reported tension or tenderness and revealed first point of contacts on the second molars, with a forward slide into the maximum intercuspation position. Impressions for study casts were then made, along with a centric relation occlusal record utilizing the leaf gauge and a facebow transfer (Figure 5,6). Following the mounting of the study casts, it became apparent that by seating the condyles in a centric relation position, the second molars were in premature contact and there was sufficient space gained to restore the anterior teeth to the proper aesthetic length (Figure 7).



Figure 3. Preoperative view of a patient who presented with severely worn dentition.



Figure 4: full mouth radiograph



Figure 5: Recording of Facebow on a patient.



Figure 6: Facebow transfer to a semi-adjustable articulator

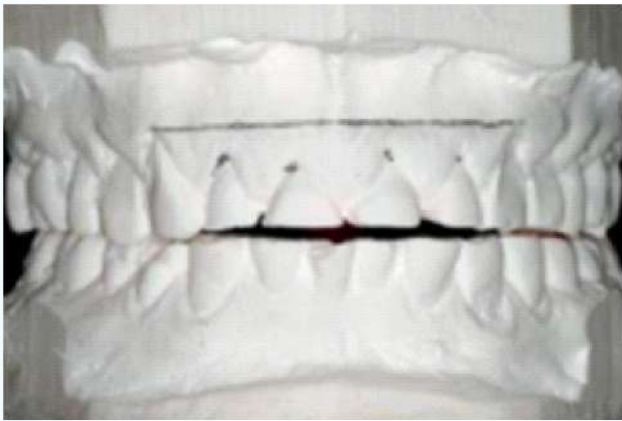


Figure 7. Mounted study casts revealed the second molars to be in premature contact when the condyles were seated in centric relation.



Figure 8: A self cure acrylic splint

Treatment Planning

Following periodontal consultation, it was determined that all posterior teeth would undergo aesthetic crown lengthening. Due to the advanced wear of the remaining teeth, the treatment plan involved full coverage restorations on all teeth and intentional RCT to be carried out on almost all teeth. For long term predictability, porcelain-fused-to-metal (PFM) restorations has been selected and metal restorations in the posterior teeth according to patient's request. Zirconia crowns would also have represented an acceptable choice. Alginate impressions for the diagnostic casts were made, along with a centric relation occlusal record utilizing Dawson's bimanual palpation technique and a facebow transfer was done. Centric occlusal record was taken with baseplate wax. Following the mounting of the study casts it was decided to increase the vertical dimension by 2-3mm. A self cure clear acrylic stabilization splint (Figure 8) was provided and the vertical dimension was increased by 1mm for every 15 days until a 3 mm clearance was gained (Figures 9, 10). After 2 months of splint therapy, patient was checked for any pain/ tenderness in TMJ and associated muscles. For mock up, face bow transfer was done and the casts were mounted at the new vertical dimension. Utilizing Broadrick analyzer mock build-up was done. At first anterior build up was done and the anterior guidance was checked. Any interference was corrected. Posterior build-up was done. A putty index was made of the mock-up for fabrication of temporary crowns. At the next appointment maxillary and mandibular

anterior tooth preparation was done for PFM full coverage crowns, PVS impressions were made, temporary crowns (Protemp) were cemented using the putty index (Figures 14 and 15).

Tooth Preparation

Following a two-month period of periodontal healing and maturation, the patient was scheduled for appointments on two consecutive days to prepare first the maxillary, then the mandibular arches. On the first day, utilizing the centric relation index and measured from the marginal tissue of teeth gaining 2 mm of anterior space by simply having the condyles seated in centric relation. This anterior opening was accomplished without appreciably stretching the elevator muscles (Figures 9 and 10). Preparation of the maxillary right and left posterior teeth was then performed using the index to confirm clearance. With the index in place, posterior bites were taken utilizing a rigid bite-registration material (Figure 11). The index was then removed, and the anterior teeth were prepared utilizing the posterior bite records to verify clearance. Following completion of the anterior preparations, an anterior bite was obtained with the posterior bite records in place. By systematically recording the posterior bite with the centric index in place and then the anterior bite with the posterior bites in place, the centric relation and vertical dimension position were maintained (Figure 12). A full-arch polyvinyl siloxane impression was then taken (Figure 16 and 17), followed by the fabrication of provisional restorations (Protemp) created in three sections: two posterior sections from molar to first premolar, and an anterior section from canine to canine. Since the maxillary arch was prepared on the first day, occlusion was adjusted against the provisionals through equilibration of the mandibular teeth (Figure 13).

During the second visit, the maxillary provisional restorations were removed and the anterior bite record from day one was inserted to hold the centric relation and vertical dimension while the mandibular posterior teeth were prepared. Following bilateral preparation of mandibular posterior teeth, bite records were taken with the anterior bite record in place (Figure 13). The mandibular anterior teeth were then prepared utilizing the posterior bite records to check clearance, and a new anterior bite record was taken (Figure 14). A polyvinyl-siloxane final impression was then made, and mandibular provisional restorations were fabricated from the index of the diagnostic waxup. As with the maxillary provisional restorations, the mandibular provisionals were fabricated in three sections (Figure 15).



Figure 9. Measurement of the anterior space from marginal tissue of teeth in maximum intercuspation.



Figure 10. By seating the condyles, a gain of anterior space was achieved without appreciably stretching the elevator muscles.



Figure 11. Preparation of the maxillary posterior teeth was performed using the index, and posterior bites were taken.



Figure 12. Anterior bite record taken with posterior bite records in place, maintaining the desired centric relation and VDO position.



Figure 13. The mandibular posterior teeth were prepared with the anterior bite records from day 1 in place to hold centric relation and VDO.



Figure 14. The mandibular anterior teeth were prepared and a new anterior bite record was taken utilizing the new posterior bite records to maintain centric relation and VDO.



Figure 15. Final provisional restorations fabricated



Figure 16: Maxillary final impression using PVS



Figure 17: mandibular final impression using PVS

Once the provisional restorations were equilibrated and the aesthetics and phonetics were deemed satisfactory, an occlusal bite record was taken of the maxillary and mandibular provisional restorations. The maxillary posterior sections were removed and, with the anterior section still in place, posterior bite records were taken. The anterior section was then removed and, with the posterior bite records in place, an anterior bite record was taken. Impressions of the provisional restorations were made, and a facebow recording was taken of the maxillary provisionals. Utilizing the facebow, the maxillary provisional model was mounted on the articulator; the mandibular model was then mounted using the occlusal bite record of the provisionals against each other thus fabricating a custom incisal guide table (Figure 18). A custom incisal guide table, as described by Dawson, allows to reproduce the anterior guidance established in the mouth with the provisional restorations. The protrusive path and lateral excursions were recorded in pattern resin on a flat guide table by movement of the articulator pin in the unset resin. Once the incisal guide table was fabricated, cross mounting began. The maxillary preparation model was mounted against the mandibular provisional restorations utilizing the third set of bite records. The mandibular preparation model was next mounted against the maxillary preparation model with the first set of bite records. After 2 months, metal try in was done and the final prosthesis was cemented.



Figure 18. Fabrication of a custom incisal guide table.

At this stage a functionally generated path (FGP) technique was used to produce a precise occlusion. Here the occlusal surface of the metal consisted of beads for the retention of material. After examining the fit of the prosthesis, a clear self-cure acrylic was mixed and placed over the mandibular occlusal surface. Patient was instructed to close the mouth in maximum intercuspation and perform right lateral, left lateral and protrusive movements in succession, ending in the MIP. The excess acrylic was trimmed off using acrylic trimmer. The occlusal surface was examined for exposure of any metal, if present the area was trimmed and self cure acrylic was placed and the patient was instructed to perform the movements again.

Once the occlusal morphology was perfected, the MIP contacts were marked using 50µm blue articulating papers, zinc oxide powder was sprinkled and brushed on to the occlusal surface to form a thin uniform coat and patient was instructed to perform eccentric movements as before. All eccentric contacts became visible by the whipping away of zinc oxide powder. Care was taken not to grind the MIP contacts that were registered in blue. The whipped out areas were trimmed using an acrylic trimmer to eliminate all the eccentric interferences and the FGP patterns were completed.



Figure 19: fabrication of metal prosthesis for try-in



Figure 20: metal try-in



Figure 21: final prosthesis (front view on a semi adjustable articulator articulator)



Figure 22: final prosthesis right view



Figure 23: Final prosthesis left view



Figure 24: postoperative extra oral view

Conclusion

Severe wear cases present many challenges to the restorative dentist, including gaining the space to create restorations to satisfy the patient's aesthetic desires, while also fulfilling occlusal and functional parameters that are essential for long-term success. The case presented has demonstrated that the required space may be obtained by seating the condyles in centric relation position. The maintenance of severe wear cases can be ensured by the development of proper anterior guidance that allows for posterior disclusion within the patient's envelope of function. Taking this guidance into account during provisionalization ensures minimal adjustments in the definitive restorations and a greater long-term predictability of the case.

Tobacco Cessation

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The tobacco epidemic is the biggest public health threat. It kills around 6 million people a year globally, of which more than 5 million are due to direct tobacco use and more than 600 000 are the result of non-smokers being exposed to second-hand smoke. Nearly 80% of more than 1 billion smokers worldwide live in low- and middle-income countries. Tobacco kills more than tuberculosis, HIV/AIDS and malaria combined. The annual death toll from tobacco use is expected to rise to 8 million in next two decades.

In Meghalaya, according to Global Adult Tobacco Survey (GATS 2016-17), 47% of the adult population (ages 15+) in the State are tobacco users. According to the Global Youth Tobacco Survey (GYTS-4, 2019), 33.6 % of students aged between 13-15 years in the State are tobacco users. The annual death rate due to tobacco in the State is 8000. Meghalaya also holds the highest Cancer rates in the country which can also be attributed to the rampant use of tobacco in the State.

Hospitals are flooded with tobacco related diseases such as Cancer of the mouth, larynx and pharynx, oesophagus, stomach, gall bladder, urinary bladder, uterine cervix and lungs, Cardio-vascular diseases and respiratory diseases [COPDs]. It is also linked with the Tuberculosis in which it is 3 times more common amongst smokers than non-smokers. Oral diseases such as Periodontitis, dental caries, halitosis and oral infections are more common in tobacco users. Among pregnant women it can cause low-birth weight baby and Sudden Infant Death Syndrome (SIDS). It also causes reduced fertility and sexual impotence among men and early ageing and wrinkling of skin.

There are immediate and long-term health benefits of quitting for all smokers.

- Beneficial health changes that take place:
- Within 20 minutes, your heart rate and blood pressure drop.
- 12 hours, the carbon monoxide level in your blood drops to normal.
- 2-12 weeks, your circulation improves and your lung function increases.
- 1-9 months, coughing and shortness of breath decrease.
- 1 year, your risk of coronary heart disease is about half that of a smoker's.
- 5 years, your stroke risk is reduced to that of a non-smoker 5 to 15 years after quitting.
- 10 years, your risk of lung cancer falls to about half that of a smoker and your risk of cancer of the mouth, throat, esophagus, bladder, cervix, and pancreas decreases.
- 15 years, the risk of coronary heart disease is that of a non-smoker's.

People of all ages who have already developed smoking-related health problems can still benefit from quitting.

- Benefits in comparison with those who continued:
 - At about 30: gain almost 10 years of life expectancy.
 - At about 40: gain 9 years of life expectancy.
 - At about 50: gain 6 years of life expectancy.
 - At about 60: gain 3 years of life expectancy.
 - After the onset of life-threatening disease: rapid benefit, people who quit smoking after having a heart attack reduce their chances of having another heart attack by 50%.

Tobacco Cessation in India:

Until 2002 there was no formal Tobacco Cessation Services available through our India. The first formal tobacco cessation clinics in India were set up in 2002, as a joint initiative of the Ministry of Health and Family Welfare, Government of India and WHO.

The initial phase involved the setting up of *tobacco cessation clinics in India and developing models for cessation*. Subsequently these clinics expanded to include training, awareness and advocacy issues and were re-designated as *tobacco cessation centres in 2005*.

In Meghalaya, Tobacco Cessation has been implemented in Dental Health facilities covering 51 centres in the whole State. NRTs are available in these centres along with behavioural counselling for tobacco cessation.

Tobacco cessation methods can be broadly classified into:

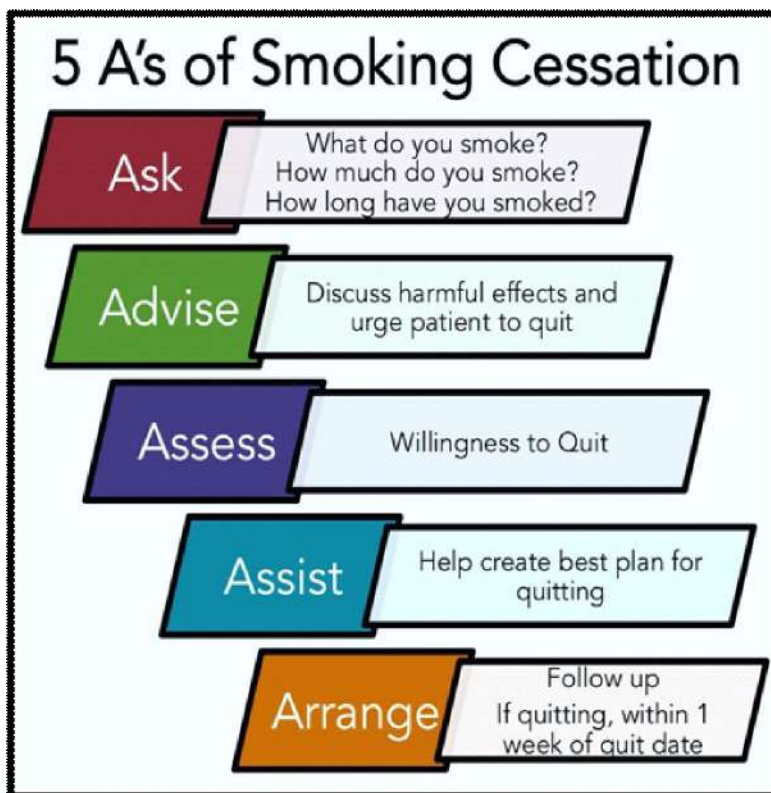
1. Cognitive Behavioral Therapy (CBT) includes methods such as self-help and brief interventions which can be provided by health professionals.
2. Intensive therapy at tobacco cessation centers.
3. Pharmacological intervention.

Medications available for tobacco cessation can broadly be divided into two groups:

1. Nicotine Replacement Therapy (NRT)
2. Non Nicotine Replacement Therapy

PROCESS OF CESSATION : the 5A's:

The Five A's (Ask, Advise, Assess, Assist and Arrange) is a five-to-fifteen-minute research-based counselling tool that has proven to be successful.



If Client is willing to quit as the Health Care Provider :

- Praise him/her for his/her readiness to quit tobacco
- Help him/her set goals to maintain a tobacco free lifestyle
- Discuss an action plan to assist him/her in tobacco cessation
- Inquire about his/her support network
- Respond to his/her specific concerns about quitting tobacco

Cessation Plans or Strategies :

- Tapering (cutting) down (1 less cigarette today, 2 less tomorrow, etc.)
- Cold turkey
- Possibly a pharmacological method to assist with cessation

For patients not ready to make a quit attempt, the healthcare provider should provide a brief intervention designed to promote the motivation to quit and information about harmful effect of tobacco.

The client may have fears concerns about quitting, or may be demoralized because of previous relapse. Such patients may respond to a motivational intervention enter venture designed to educate, reassure and motivate. The components of such motivational intervention build around the 5Rs:

Relevance	• Explain the relevance of quitting to the subject. Motivational counseling is more effective if context is relevant to the smoker, like harm of passive smoking to family members especially younger children
Risks	• Clinician should highlight the health hazards that are more relevant to the tobacco uses. Both short term risks like and long term risks should be properly explained.
Rewards	• Benefits of quitting all forms of tobacco use should be explained to the tobacco user. Improved health of self and other family members, better physical performance, saving of money and other relevant advantages should be explained to the patient.
Roadblocks	• Barriers that the patient may face in his/her quit attempt should be identified. Withdrawal feature, fear and concern associated with quitting, depression, lack of social support, enjoyment of tobacco are some of the barriers that the patient may face in its attempt.
Repetition	• Physician should give assurance to the patient that because of chronic nature of tobacco dependence relapses in the initial phases are common and multiple attempts may have to be made before a subject is able to quit tobacco. Repeat motivational counselling should be provided at each contact.

Nicotine Replacement Therapy (NRT) is a method of substituting the nicotine in tobacco products by an approved nicotine delivery product so that the tobacco user does not have uncomfortable withdrawal symptoms upon stopping the tobacco product

The dose of NRT is monitored and gradually reduced to make the process of cessation comfortable for the tobacco user.

As compared to blood levels of nicotine following tobacco smoke inhalation, NRT blood levels increase relatively slowly. Nicotine through tobacco smoke reaches brain within few seconds compared to medicinal nicotine which take few minutes to hours. Hence motivation and patience are essential for the user.

All types of NRTs viz. Nicotine patch, nicotine gum, nicotine inhaler, and nicotine nasal spray have been shown to have more or less similar success rates.

1. Nicotine Gum:



- It acts as an oral substitute and provides a source of nicotine that reduces the withdrawal symptoms experienced when tobacco use is stopped.
- The gum is available in different strengths and can be used on either at regular intervals or on an as needed basis. Tapering can be considered after 8 to 12 weeks.
- Availability of Nicotine gum in India:-
 - Composition: Nicotine Polacrilex (Dosages: 2 mg and 4 mg)
 - The correct dose for Gum depends upon the number of cigarettes you smoke per day.
- **How it is used-**
- Should be used orally as a chewing gum and not swallowed.
- Treatment is usually started by using 2 mg gum.
- Heavy smokers/ tobacco users may start the treatment by using 4 mg gum.
- Nicotine gum may be used by chewing one piece of gum every 1-2 hours at first, or by chewing one piece of gum whenever there is an urge to use tobacco.
- The gum should be chewed slowly until the taste of nicotine or slight tingling is felt in the mouth.

- Stop chewing and place (park) the gum between cheek and gum.
- Parking the nicotine gum is essential for the absorption of nicotine through the buccal mucosa, not doing so will lead to more nicotine being swallowed which might result in side effects such as nausea and vomiting.
- Once the tingling is almost gone (almost one minute), start chewing again.
- Repeat this procedure for about 30 minutes



• **Precautions :-**

- Don't chew nicotine gum too fast.
- Don't chew more than one piece of gum at a time.
- Don't chew one piece too soon after another.
- Don't chew more than 30 pieces of 2mg gum in a day if under supervision.
- Don't chew more than 24 pieces of 2 mg gum in a day if not under supervision.
- Avoid eating and drinking (especially acidic beverages such as coffee or soft drinks) for 15 minutes before and during chewing of nicotine gum to prevent reduced absorption of nicotine.
- Gradually reduce the amount of nicotine gum use after 2-3 months, which prevents nicotine withdrawal symptoms.

2. **Nicotine Patches:**



- Nicotine patches are applied to the skin and deliver Nicotine through the skin at a **relatively steady rate**.
- Patches are available in a range of dosages, which permits higher dependent smokers to use the strongest patches and lower-dependent smokers to use a lower.
- Availability in India:
 - a. Brand Name:** 2baconil
 - b. Generic Name:** Nicotine
 - c. Formulation Type:** Patch and Gum
 - d. Strength:** Patch(7/14/21mg) & Gum(2mg & 4mg)
 - e. Indication:** Tobacco de-addiction
 - f. Dosage Form:** Patch and Gum
 - g. Administration route:** Transdermal (TD) and Oral
 - h. Manufactured by:** Rusan Healthcare Pvt. Ltd
- The correct dose for Patch depends upon the number of cigarettes you smoke per day.
 - Patch: Apply new patch every 24 hrs preferably in morning.
 - For 20 or more cigarettes per day: Patch strength 21mg -1st month; Patch strength 14mg - 2nd month;
 - Patch strength 7 mg -3rd month.
 - For Less than 20 cigarettes per day: Patch strength 14mg -1st month; Patch strength 7mg - 2nd month;
 - Patch strength 7 mg -3rd month.



- **How does a Nicotine patch work?**

On application of Nicotine patch, the Nicotine passes through the skin and into the bloodstream. While in the bloodstream, it replaces Nicotine that smokers receive from smoking cigarettes. Nicotine in the blood is high enough to decrease cravings and withdrawal symptoms (such as irritability, frustration, anger, anxiety, difficulty concentrating, and restlessness). Sticking with the patch will increase chances of success.

The nicotine patch provides a steady, controlled dose of nicotine throughout the day, thereby reducing the effects of nicotine withdrawal. Patch strength is reduced over time, allowing the person to wean themselves off of nicotine gradually.



The Pathway of Absorption Across the Skin

Nicotine inhalers and sprays are not presently available in India.

Studies suggest that all types of NRT can be effective for quitting smoking, but the patch with a short-acting NRT produced the best results. The combination of counselling and medication is also more effective than either alone.

Non-Nicotine Replacement Therapy

In this type of therapy, medications which act on the similar set of neurotransmitters that are affected by nicotine and provide effective and behavioural regulation are used. This tackles the need, or impulse to use nicotine and to minimize withdrawal effects.

While with nicotine replacement therapy, the tobacco user immediately quits tobacco use upon starting NRT, in the case of non NRT medication, the user sets a quit date one to two weeks after initiation of the medicine.

First Line Drugs:

- **Bupropion :**

- Bupropion is a non-nicotine drug for treating tobacco dependence. It is an atypical antidepressant that has both dopaminergic and adrenergic actions.

A quit date is decided preferably within 7 to 14 days of starting treatment with bupropion. This is because the steady state plasma concentration of bupropion and its active metabolites are achieved in approximately 8 days after initiation of therapy.



- **Varenicline:**

- This is a partial nicotine agonist that selectively binds to the alpha (4) and beta (2) nicotinic acetylcholine receptors in the brain. It lessens the physical pleasure from taking in nicotine and helps lessen the symptoms of nicotine craving.

Tobacco use may be stopped one week after initiating treatment with Varenicline.



Non Nicotine Replacement Therapy (Non-NRT)			
	Dosage and duration	Side effects	Contraindications
Bupropion	150mg OD for 3days followed by 150mg BD for 7 to 12 weeks.	Agitation, restlessness, insomnia, gastrointestinal upset, anorexia, weight loss, headache and lowering of seizure threshold (at doses 600 mg/day). Rarely allergic reactions can occur, including skin rashes, fever, muscle and joint pain.	History of allergy, tumours of central nervous system, severe liver diseases, undergoing unsupervised withdrawal of alcohol or benzodiazepenes, uncontrolled seizures, pregnant and lactating women, those below 18 years, and persons on monoamine oxidase inhibitors.
Varenicline	Initially 0.5 mg once daily for the first three days, increased to 0.5 mg twice daily for the next four days, and then increased to 1mg twice daily for 12 weeks. The person can quit one week after initiating Varenicline	Agitation, depression, restlessness, insomnia, bad dreams, suicidal ideations, gastrointestinal upset and headaches. Allergic reactions may occur rarely.	Pregnant women, children or people with mental illness. Stop treatment if changes in mood & behavior, agitation and suicidal ideations occur.

Combination Therapy

- Combined behavioral and pharmacological therapies appear to be the best approach for treating tobacco dependence.
- Because these therapies operate by different mechanisms, complementary and potentially additive effects may be expected. Nicotine Replacement Therapies (NRT) combined with supportive counseling are the most widely used and intensively reached treatment method.
- Although self-help strategies alone marginally affect quit rates, individual and combined pharmacotherapies and counseling either alone or in combination can significantly increase cessation.

Common Problems while quitting and solution:

Problems	Responses
Lack of support for cessation	Schedule follow-ups or telephone calls with the patient. Help the patient identify sources of support within her environment (appropriate organization that offers cessation counseling or support).
Negative mood or depression	If significant, provide counseling, prescribe appropriate medications, or refer the patient to a specialist.
Strong or prolonged withdrawal symptoms	If the patient reports prolonged craving or other withdrawal symptoms, consider extending the use of an approved pharmacology or adding/combining pharmacologic medications to reduce strong withdrawal symptoms.
Weight gain	Recommend starting or increasing physical activity after a physician's clearance. Emphasize the importance of a healthy diet. Reassure the patient that weight gain is normal
Flagging motivation/feeling deprived	Reassure the patient that these feelings are common. Recommend rewarding activities. Probe to ensure that the patient is not engaged in periodic tobacco use. Emphasize that beginning to smoke (even a puff) will increase urges and make quitting more difficult.

Relapse prevention:

Relapse prevention strategies aim to assist people to avoid or cope with high-risk smoking situations. Such strategies also aim to prevent a lapse from occurring or if it occurs from becoming a full relapse to smoking.

Suggested strategies are

- Identify high-risk tobacco use situations and important triggers
- Plan coping strategies in advance
- Consider lifestyle changes that may reduce the number of high-risk situations encountered, e.g. stress management, reduction in alcohol consumption
- Encourage patients to have a plan for how to deal with a slip to prevent it becoming a full relapse

During relapse prevention, a patient might identify a problem that threatens his or her abstinence. Specific problems likely to be reported by patients and potential responses as follows:

- It is important to remember the reasons you want and need to stop tobacco.
- The first few days to weeks after quitting will be the hardest.
- It is important to use self-discipline and your most effective techniques to avoid giving in to the cravings.

Coping tips to stay a non-tobacco user for life

- Once you quit tobacco, it's time to focus your energy on avoiding the temptation to have "just one cigarette/bidi". To remain an ex-tobacco, you need to learn specific techniques to help you cope with stress and situations that trigger your cravings for cigarettes.
- Try any of these coping responses when faced with a relapse situation:

- Remind yourself how hard it was to quit. Do you want to go through that again?
- Have a non-alcoholic drink. Talk to yourself. Say, “I can beat this,” or “I will not take tobacco”
- Have a crunchy, low-fat snack, popcorn, or carrot sticks.
- Take a short walk.
- Excuse yourself and leave the room if someone lighting a cigarette triggers your craving.
- Brush your teeth.
- Take several slow, deep breaths and think about how clear your lungs feel.
- Do something with your hands-squeeze a rubber ball, play with a toothpick, coin, or paper clip.
- Remind yourself that smoking makes clothes, and hair smelly, dries skin, causes premature wrinkles and turns teeth yellow.

Conclusion:

Tobacco cessation in India needs to be implemented in multiple settings. Incorporating tobacco cessation training in medical and other health professional education, training of health professionals to offer cessation advice in their routine health care practice, disease specific counselling sessions in diabetes, TB and selected other specialties are likely to result in significant quit rates among current tobacco users. Effective implementation of the Framework Convention of Tobacco Control is likely to have impact not only on the prevention of initiation of tobacco use but also on tobacco cessation to a large extent.

Choose life over tobacco. Make every day a no tobacco day.

National Tobacco QUIT LINE: 1800-11-2356

Email: stcc.meg@gmail.com (National Tobacco Control Program, Meghalaya)

Immediate Implant Placement **PROS & CONS**



Dr. Sauraj Dey BDS (K.G.M.C Lucknow)
FADI – USA
JOINT SECRETARY, IDA MEGHALAYA

Definition: Immediate implant placement (I.I.P) or approach is defined as the placement of dental implant immediately into fresh extraction socket site after tooth extraction.

There are other two approaches to implant placement: -

- **Early placement** – Placement that takes place 2-4 weeks post extraction to allow soft tissue healing which also has a shorter treatment time.
- **Delayed approach** – also known as *Conventional Approach* takes place 4-6 months after extraction. This approach has the longest treatment time; bone resorption during socket healing process and requires extra surgical procedure.

DIAGNOSIS AND TREATMENT PLANNING

Diagnosis and proper investigations are the key factors for successful treatment outcome in the case of I.I.P.

Investigation

1. Intra oral periapical radiographs
2. OPG Xray
3. Cone beam computerized tomography (CBCT) (most important)

CBCT should be evaluated for checking the availability of native bone and bone shape, quality, quantity, bone width and bone height.

The most important step in treatment planning is determining the prognosis of the tooth in question.

REASONS FOR TOOTH EXTRACTION MAY INCLUDE:

1. Insufficient crown to root ratio
2. Remaining root length
3. Periodontal attachment level
4. Furcation involvement
5. Periodontal health status of teeth adjacent to the proposed implant site
6. Non restorable caries lesions
7. Root fractures with large endodontic posts
8. Root resorption
9. Questionable teeth in need of endodontic retreatment.

Esthetic zone is very important during treatment planning.

PROS AND CONS OF IMMEDIATE IMPLANT PLACEMENT

	PROS	CONS
1	Reduced number of surgical procedures	Risk for higher implant failure
2	Shortened overall treatment time	Unpredictable future at the hard and soft tissue levels
3	Psychological benefit for patients	Difficult to achieve implant primary stability
4	Preserves hard and soft tissues	Bone graft/ membrane is often required (extra cost)
5	Reduced period of edentulism	

IMMEDIATE IMPLANT PLACEMENT

INDICATION	ABSOLUTE CONTRADICTION	RELATIVE CONTRAINDICATION
Systemically healthy	Complicated systemic disease	Heavy smokers
Adequate soft tissue	Maxillary sinus involvement	Uncontrolled diabetes mellitus
Adequate hard tissue	History of bisphosphates	
Intact facial plate	History of periodontal disease	
Thick tissue biotype	· Absence of intact labial plate · Presence of active infection	

Critical evaluation of smile line, bone and gingival architecture, hard and soft tissue levels are essential for implant esthetics.

There are *five* diagnostic factors for predictable single tooth peri- implant esthetics when immediately placing implants in extraction sockets.

1. Tooth position relative to the free gingival margins
2. Form of the periodontium
3. Biotype of the periodontium
4. Tooth shape
5. Position of the osseous crest before tooth extraction

Three of the five factors involve hard and soft tissue components.

Surgical approach for an I.I.P is almost similar to the delayed approach except the I.I.P a consideration of implant shift to the buccal side should be taken into consideration. This is due to the thin buccal plate with high content of bundle bone.

CASE SELECTION

The success of I.I.P depends upon hard and soft tissues surrounding the surgical area.

1. Periodontal biotype affects the periodontal tissue dimensions, including masticatory mucosa and biological width.
2. Thick biotype is defined when the periodontal probe cannot be seen through gingival tissues, whereas in thin biotype it is visible.
3. Thick biotype is resilient and prone to pocket formations, whereas thin biotype is more prone to gingival recession.

Patients with thicker biotypes are better candidates for I.I.P because there is less chance that the tissue will recede post- placement, resulting in stable esthetics.

**If I.I.P is done in patients with thin biotype, then there maybe high risk of exposure of metal margin of the implant. This is because thin tissue biotype had higher frequency for gingival recession of >1 mm compared with thick biotype.*

4. A sufficient amount of crest ridge with width of 4 to 5 mm and height of 10 mm or more are minimum requirements for predictable I.I.P. The height is necessary for a stable implant and maintaining a safe distance (e" 2 mm from mandibular canal, maxillary sinus and nasal floor) from vital anatomical structures.
5. I.I.P into a chronic infected socket should be avoided eg; periapical lesions. However, implant can be placed if the socket is debrided and meticulously cleaned followed by antibiotic administration.

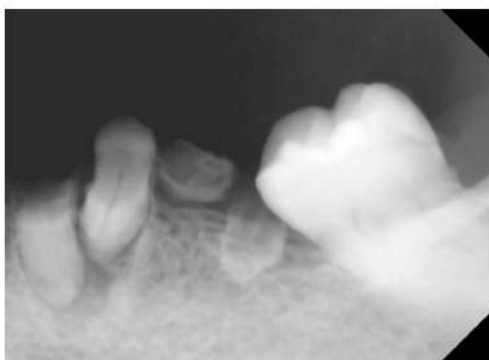
FUNATO ET AL CLASSIFICATION LIMITING I.I.P based on the characteristics of buccal bone and soft tissue profile

Class 1	Class 2
• Intact buccal bone with thick biotype.	• Intact buccal bone with thin biotype.
• Optimal results with immediate placement without flap reflection.	• Good results with immediate placement with connective tissue graft.
Class 3	Class 4
• Deficient buccal bone within the alveolar housing.	• Deficient buccal bone away from the alveolar housing.
• Limited and acceptable result with guided bone generation and connective tissue graft.	• Unacceptable results with compromised osseointegration.

CONCLUSION

There are higher implant survival rate when implants are submerged.

It is up to the skill of the Doctor who can do careful planning and case selection to ensure implant success as well as final esthetic outcomes.



Antibacterial mouthwash increases blood pressure :

Fact or fiction?

-A Literature review



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Periodontist & Implantologist

INTRODUCTION

Dental health is the foundation of overall health, therefore maintaining basic oral hygiene is essential. Because of the high frequency of gingival and periodontal diseases worldwide, mechanical plaque management has become a priority. Regardless of how important appropriate brushing and flossing techniques are, mechanical plaque control is limited to certain locations, most commonly supra-gingivally and to a lesser extent sub-gingivally, making it difficult to achieve perfect plaque control. One explanation could be poor toothbrush use, as well as the fact that certain interproximal locations are unreachable to a toothbrush, necessitating the use of other assistance.

This has prompted scientists and clinicians to look for antimicrobial support that could help patients maintain better oral hygiene. Mouthwashes such as Chlorhexidine, which has been widely used for over 40 years, have helped control plaque and biofilms by binding to oral surfaces such as pellicle and saliva, providing antibacterial activity for up to 5 hours and reducing bacterial counts up to 12 hours.

However, recent research has found that using antibacterial mouthwash can counteract the nitrate's blood pressure-lowering benefits. In fact, using antiseptic mouthwash raised blood pressure in healthy people and negated nitrate's blood pressure-lowering effects in rodents. The disruption of nitrate reduction to nitrite by oral bacteria, which attenuates the increase in plasma nitrite levels, has been attributed to this negative effect associated with the removal of oral commensal bacteria.

SYNTHESIS OF NITRIC OXIDE

Nitric oxide as a vasodilator can be synthesized through two pathways. Endogenously it is generated via the L-arginine pathway with help of the enzyme synthase. Among the synthases, the eNos (endothelium derived) are considered of importance to vascular biology. Endothelial derived nitric oxide plays an important role in maintaining vascular homeostasis and integrity by maintaining vascular tone and blood pressure in the vasculature. Nitric oxide produced by the endothelium is rather unstable, easily oxidized to nitrite and nitrate, and stored in the salivary glands.

Exogenously, it is derived through dietary supplementation of inorganic nitrate and produced via nitrate-nitrite-NO pathway. A crucial step involved in the exogenous nitrate-nitrite-NO pathway is the reduction of nitrate to nitrite by the oral commensal flora. Reduced bacterial nitrate reduction could have a negative impact on the circulating NO pool and NO mediated vascular outcomes.

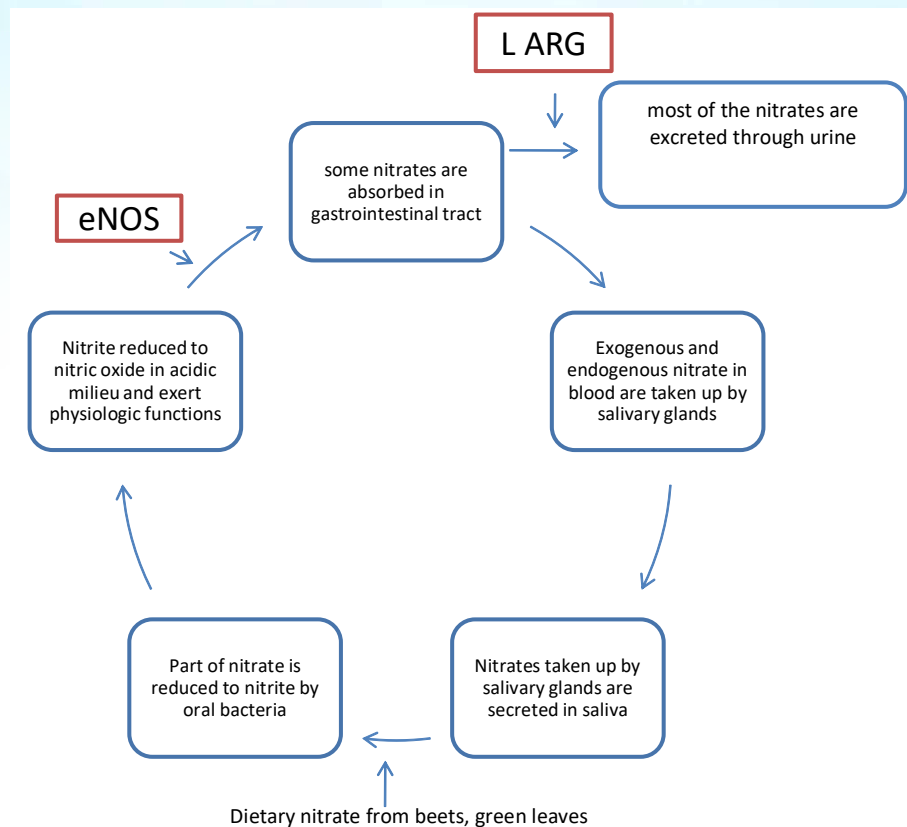


Fig 1. The entero-salivary nitrate circulation.

NITRIC OXIDE AS A REGULATOR OF BLOOD PRESSURE

HISTORICAL PERSPECTIVE

Nitric oxide as a vasodilator was studied by Furchgott and many others. A breakthrough came when Ferid Murad and Louis Ignarro in the 1970s showed that the nitroglycerin used to treat angina pectoris is itself inactive but produced a vascular relaxation when it was converted to an active metabolite nitric oxide. This is brought about by stimulating the cyclic GMP leading to altered phosphorylation of myosin side chain and hence promotes vasorelaxation (Fig 2). Moncada and colleagues also proved that nitric oxide was sufficiently released from the endothelial cells to bring about relaxation of the muscle cells.

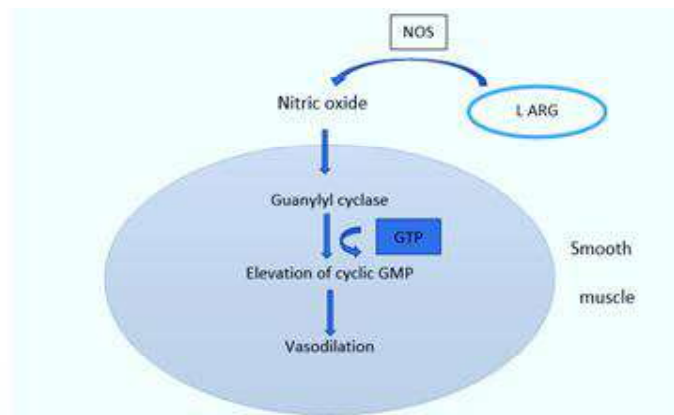


Fig 2. Vascular relaxation mediated by nitric oxide

LOCATION OF ORAL BACTERIA

The oral cavity harbours many bacterial species responsible for nitrate reduction. After an oral nitrate load, plasma nitrite concentration increases continually. The majority of nitrate reduction occurs on the posterior surface of the tongue, but nitrate reduction in the overall oral cavity varies greatly between people. Rat studies have also revealed that nitrate reductase activity occurs on the tongue's posterior surface and that gram-negative bacteria were identified in considerably higher proportions deep within the tongue clefts than on the surface. Rather than providing an oxygenated environment that is unfavourable to the existence of anaerobes, it works as a reservoir for oral debris and germs, most notably anaerobic bacteria. Tongue clefts offer protection from mastication and salivary flow, as well as a low redox potential that promotes the growth of obligate anaerobes. Saliva bathes the microorganisms on the tongue surface, providing both a buffer and a source of nutrients.

NITRATE REDUCING BACTERIA

The strict anaerobes (*Veillonellaatypica* and *Veillonelladispar*) and the facultative anaerobes (*Actinomyces odontolyticus* and *Rothiamucilaginosa*) are the two principal nitrate-reducing bacteria. Although *A.odontolyticusa* facultative anaerobe have a significantly increased ability to reduce nitrate following incubation under anaerobic conditions, the strict anaerobes (*Veillonellasp.*) have been reported to be the most numerous on the tongue and hence may be a substantial contributor to nitrate reduction in the oral cavity.. On the posterior surface of the tongue, scientists discovered a larger abundance of *Prevotella*, *Neisseria*, and *Haemophilus* than *Actinomyces* using 16S rRNA gene pyrosequencing and whole-genome shotgun sequencing and analysis. Mouthwashes disrupts the bacteria's cell membrane, resulting in an antibiotic effect. A considerable decrease in the concentration of numerous bacteria supra-gingivally, such as *Veillonella* sp.(52.3%),*Capnocytophaga* sp. (74.1%), *Fusobacterium nucleatum* (81.5%), total anaerobes (88.5%), and sub-gingivally *Veillonella* sp., *Porphyromonagingivalis*, total anaerobes and *F nucleatum* were found after chlorhexidine rinse.

DISCUSSION

The anions nitrate and nitrite are considered to be biologically inert. Nitrate derived from dietary or endogenous sources requires its initial reduction to nitrite for its bioactivation. Because mammals lack specific and effective nitrate reductase enzymes, oral commensal bacteria carry out this conversion by using nitrate as a terminal electron acceptor for ATP production thereby converting nitrate (NO_3^-) to nitrite (NO_2^- ; which can be vasoactive under low-oxygen and low-pH conditions) and then to nitric oxide (NO).

Intake of a nitrate rich diet is usually associated with concomitant blood pressure effects. Some studies show a reduction in both systolic and diastolic blood pressure while others show a decrease in either systolic or diastolic blood pressure.

However, the use of antibacterial mouthwash has shown to abolish these blood pressure lowering effects of nitrate in healthy individuals. This deleterious effect associated with removal of the oral commensal bacteria has been attributed to the disruption of nitrate reduction to nitrite by oral bacteria, thus attenuating the increase in plasma nitrite levels.

In two recent studies done by **Kapil** and **Bondonno**, they showed that the use of an antiseptic chlorhexidine containing mouthwash resulted in a decrease in salivary and circulating nitrite owing to the decreased in

oral microbial nitrate reduction to nitrite accompanied by an increase in blood pressure, indicating that the disruption of the nitrate-nitrite-NO pathway disturbs vascular NO homeostasis.

This interference in the responses to nitrate and nitrite is explained, at least in part, by derangement of the entero-salivary cycle of nitrate. Given that circulating nitrite may generate NO and cause vasodilation by NO-dependent and independent mechanisms resulting in lower blood pressure, it is possible that antiseptic mouthwash prevented the blood pressure responses by preventing the increase in circulating nitrite concentrations which consequently were reflected as increased blood pressure in chlorhexidine users.

This adds weight to our hypothesis that the oral nitrate-reducing bacteria play a functional role in the regulation of blood pressure. While the exact mechanisms behind the observed blood pressure effects have not been fully understood, reduction of nitrate to nitrite by the oral microbiota is imperative. Interruption of the nitrate-nitrite-NO pathway through the use of antibacterial mouthwash prevents the exogenously and endogenously produced nitrate from being recycled to systemic nitrite. While nitrite itself could have a direct blood pressure lowering effect, evidence suggests the benefits are NO mediated. Impaired NO activity has been widely acknowledged to promote endothelial dysfunction and contribute to hypertension.

On the contrary, a study by **Govoni et al. (2008)** where even after the mouthwash administration, there was a significant rise in plasma nitrite despite the fact that it completely abolished nitrite formation in the mouth, thereby excluding a salivary origin. A possible explanation may be that the microflora in the stomach and small intestine contributed to some nitrate reduction. A more intriguing explanation would be that mammalian cells in the gut wall, the liver or elsewhere were capable of some nitrate reduction. There are anecdotic reports of nitrate reductase activity in the gut wall of rats, although it is generally believed that mammals lack the effective nitrate reducing enzymes. However, despite this compelling possibility, the fact still remains that the acute rise in plasma nitrite after nitrate ingestion is predominantly originating from bacterial nitrate reduction in the oral cavity.

In another study by **Sunqvist et al. (2016)**, they observed that salivary nitrate levels were higher after mouthwash compared to placebo while nitrite levels were markedly reduced. Nitrate and nitrite levels in plasma were not significantly changed after mouthwash use compared to placebo.

In light of the absent effect on plasma nitrite following the mouthwash procedure, it is not surprising that they could not observe any effects on blood pressure, since nitrite seems to be an obligate intermediate in bioactivation of nitrate. This result could also be linked to a bias in the kind of the patients included. Given the heterogeneity of the experiments conducted in various studies, in particular by the different timing of the fluid analysis, it could have led to a mismatch in comparison of the results, since the nitrate metabolism is subject to sudden changes in association with time.

Our data demonstrating a robust correlation between changes in serum and salivary nitrite levels and changes in BP support our contention that preventing the conversion of nitrate to nitrite by 0.2% chlorhexidine mouthwash underlies the increase in blood pressure. Our investigation is further supported by evidence of the trends toward significant associations between changes in salivary nitrite concentration and changes in systolic and diastolic blood pressure.

The limitations of these investigations were also recognised in that, it remains to be studied if a sustained depression of oral nitrate reduction by the prolonged use of chlorhexidine will have any pathological consequences in the cardiovascular system. In addition, determination of whether other antiseptic mouthwash products would affect nitrite and NO homeostasis in a similar manner is uncertain.

The observed risk of mortality due to cardiovascular and septic events associated with antiseptic mouthwash use has also been observed exclusively with chlorhexidine-based mouthwashes. While the hypothesis that a disturbance of the nitrate–nitrite–NO pathway by oral antiseptics may be the pathogenic mechanism behind the observed relationship with mortality remains unproven, it is recommended to restrict the use of oral antiseptics to indications supported by evidence.

Second, most of the research looked into employed chlorhexidine mouthwash as an antibacterial agent, however a recent study found that using triclosan toothpaste as an antibacterial agent had no effect on oral nitrate reduction. As a result, it is yet to be determined whether the use of additional agents besides chlorhexidine will have any effect. Finally, the use of antiseptic mouthwash reduced bacterial counts by around 50–70% in the studies examined. It's yet unclear whether antiseptic mouthwash impairs the entero-salivary circulation of nitrate as a result of a changed or diminished oral microbiota.

Despite the numerous explanations, the acute spike in plasma nitrite is still mostly caused by bacterial nitrate reduction in the mouth cavity. Antibacterial mouthwash use was also linked to a slight increase in blood pressure, which could have implications for vascular health.

CONCLUSION

It is clear that a balanced oral hygiene, combining tooth brushing and flossing is of utmost importance to reduce the risk of periodontal disease, being a risk factor for development of cardiovascular disease. However, these mechanical interventions have little or no effect on the overall oral bacterial flora. In contrast, an antibacterial chlorhexidine mouthwash can effectively and haphazardly kill all different strains of bacteria. While this might be beneficial in advanced cases of periodontitis, it is likely not advantageous under normal circumstances.

Based on the findings in our current study, we speculated that prolonged use of a potent antibacterial mouthwash product may adversely affect the cardiovascular system by reducing the number of oral nitrate-reducing bacteria. An important inference from the present study is that disturbances of the oral bacterial flora could attenuate the NO-dependent biological effects of nitrate and nitrite.

It also raises a potential public health question on the appropriate applications and health risks-to-benefits ratios of widespread mouthwash usage. Although mouth-rinses may reduce the build-up of plaque and gingivitis in some individuals, a large proportion of the general public predominantly uses it in order to prevent bad breath which could alternatively have a negative impact on their systemic health. Clearly, extensive and substantial clinical investigations are warranted to assess the general applicability of our findings to the population at large.

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IDA ACTIVITIES

CDE Programmes

Due to the pandemic 2020-2021 we could not have any IDA programmes. We were only able to organize CDE programmes post pandemic when protocols allowed us to hold seminars.

So this year we started with the first CDE on the 8th of June 2022 in Shillong club.

Topic: Diagnostic Dilemmas and Management of Oral Pre Cancerous Lesions

Speaker: Dr. Aruna Vijay Singh, Professor and HOD dept of Oral Medicine and Radiology, DAV Dental College, Yamunanagar



Our second CDE programme was on 30th July 2022 in Hotel Pinewood, Shillong.

Topic: Minor Oral Surgery: Do's and Don'ts

Speaker: Dr. Ashutosh Vatsyayan, MDS (OMFS), PGF (H&N Onco) FIBCSOMS (USA),
Maxillofacial/Oral Cancer & Reconstructive Surgeon.



And the last CDE programme for 2022 was in Tura.

Many a times we had discussed about holding programmes in Garo Hills for our dear doctors staying there as it's not always possible for them to travel to Shillong for every CDE programme we organise here. But the discussions would not materialize for some reason or the other.

Finally this time when Dr Pratim Talukdar agreed to do a programme we jumped into the opportunity and few of our doctors from Shillong set off for Tura on 15th of Oct 2022.

Topic: Let's get started with Implants

Speaker: Dr Pratim Talukdar, BDS, MDS (Prosthodontics) Implantologist

Venue: Brookside Christian Retreat Centre, Rongkon





Our Doctors on the way to Tura for the CDE Programme

CDH- Report

Oral Health Awareness cum Screening Camp

Good oral health is for one and all. The Indian Dental Association Meghalaya branch is making its priority in achieving this goal and to imbibe in the minds of every individual particularly the young ones about the importance of having good oral health. The IDA Meghalaya branch is committed to this cause and therefore conducting various oral health awareness and screening for the students at school and community at large.

On 18th October 2022, at Lumshyiap School Shillong, the IDA team consisting of Dr. Freddie Kharmawlong, Dr. Alice Lyngdoh, Dr. Daphi Larissa Mukhim and Dr. Bansiewdor W Thangkhiew, the team had carried out the awareness and screening where 144 children benefitted from this camp. The children were taught the brushing technique, the importance of teeth as well as the ways in maintaining healthy mouth.

The community Camp at Umphyrnai village East Khasi hills District was conducted on 29th October 2022, in collaboration with Loreto convent school Shillong and Bansara eye care Shillong. The IDA team of Dr. Lumbor Mawson and Dr. Alice Lyngdoh were giving oral health awareness and screening to 85 participants that attended the camp.

The camps were successful as the participants were co-operative and motivated to maintain good oral hygiene.





The IDA Meghalaya branch supported the workshop on “oral Health care in the tribal population of North East India” organised by department of dentistry NEIGRIHMS Shillong Meghalaya on 12th –14th November 2022 under the aegis of NOHP, MOHFW, New Delhi. Dr Freddie Kharmawlong, Dr Niewkor Maki Warjri, Dr Phibaiahun C Dohling and Dr Daphi Larissa Mukhim represented the IDA Meghalaya branch and actively participated in the oral health camp that was held at Tyrna village East Khasi Hills District, Meghalaya as part of the workshop. Many members of the community were examined and free medicines, toothpastes and toothbrushes were distributed during the camp.



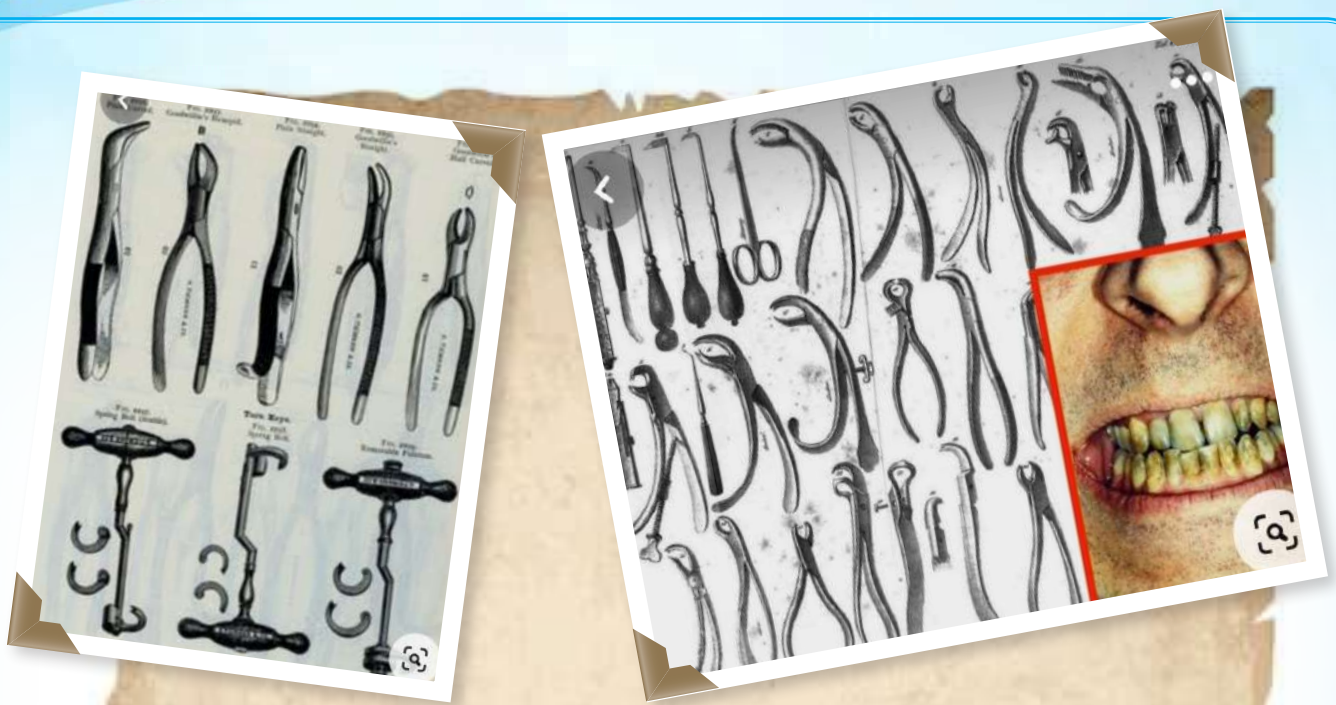
Unwinding !!!

When the internet is on your fingertips, no time is wasted. Off and on my fiddling fingers would come across many interesting fun facts which I have put together a few here. Hope it amuses you as much as it did to me.

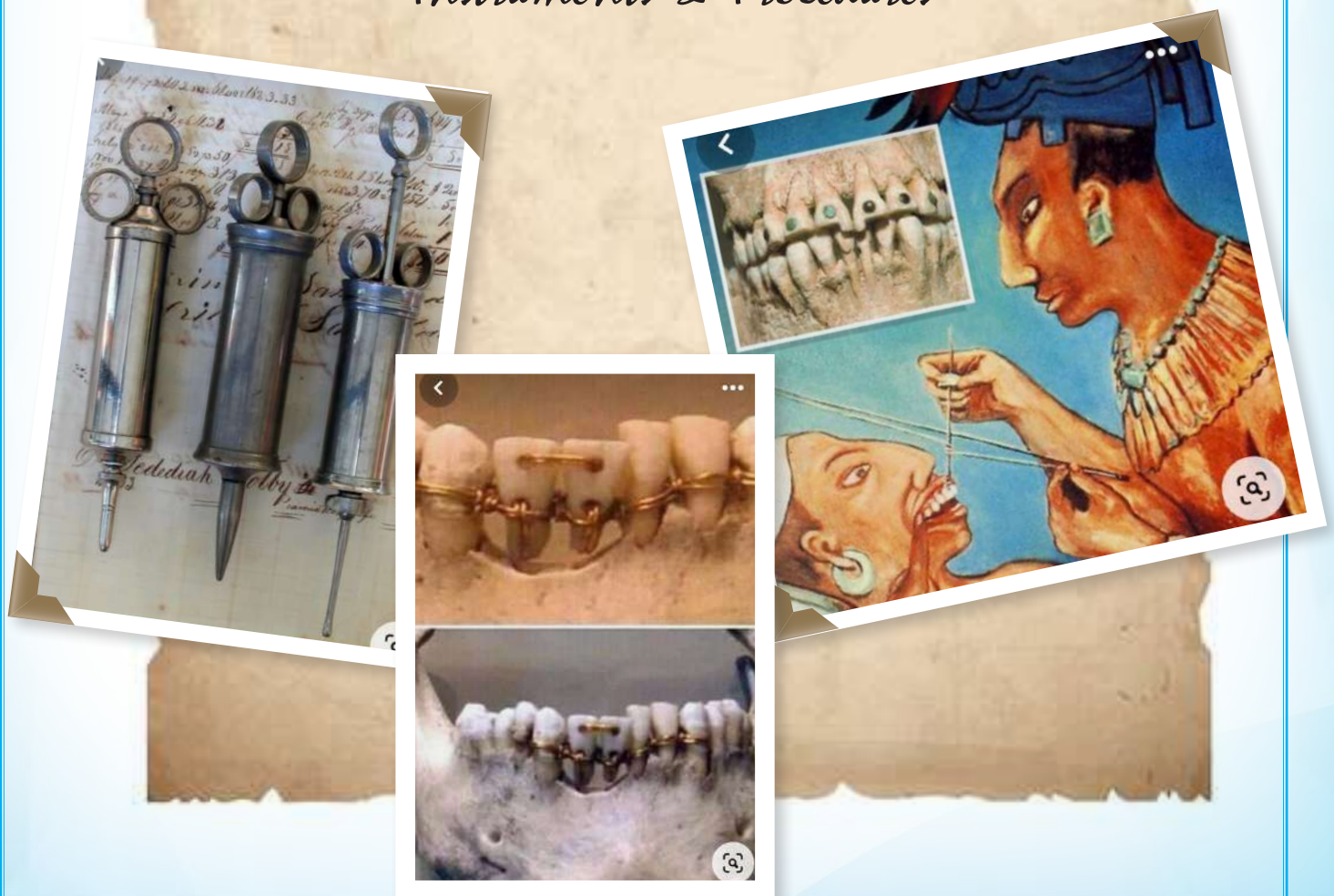


ONCE UPON A TIME Dental Units





ONCE UPON A TIME Instruments & Procedures



WHEN YOU.....



EAT....



DRINK....



LIVE



THINK



WEAR



DREAM

DENTISTRY

HIGH LEVEL TECHNICAL JOKES:

Scientists were playing hide & seek in heaven.

Einstein was seeker.

Newton didn't hide & stood in a square of 1 meter.

Einstein: I found u Newton !! Thhappa !!!

Newton: U are Wrong.

I am not Newton.

As I am standing in 1 mtr square, I am Newton/per mt sq.

So I am Pascal.

Q: What did the thermometer say to the graduated cylinder?

A: "You may have graduated but I've got so many degrees"

Did you hear oxygen and magnesium dating together?

OMg!!

What if Oxygen went on a date with Potassium?

Its OK..

Atom 1: I just lost an electron.

Atom 2:how u feel?

Atom 1: positive

Q:What do you get when you put a Cobalt & 2 iron atoms in mixer

CoFFee

What do you get after reaction of a Barium atom with two sodium atoms...

BaNaNa

And finally

Can't end without a movie dialogue

Electron to neutron : mere pass charge hai , spin hai, magnetic field hai, reactivity hai ... Tumhare pass kya hai

Neutron : mere pass.....

MASS hai

Contributed by Dr. Verinia G. Mawlong

A disappointed salesman of Coca-Cola returned from his assignment to Saudi Arabia.

A friend asked, "Why weren't you successful with the Saudis?"

The salesman explained, "When I got posted, I was very confident that I would make a good sales pitch.

But I had a problem. I didn't know how to speak Arabic. So I planned to convey the message through three posters.



First poster : A man lying in the hot desert sand totally exhausted and fainting.

Second poster : The man is drinking Coca-Cola.

Third poster : Our man is now totally refreshed.

And then these posters were pasted all over the place.

"Terrific! That should have worked!" said the friend.

"The hell it should have!" said the salesman.
"No one told me they read from right to left!"

Q: What's the dentist's favorite idiom?

A: Put your money where your mouth is

Q: What does a dentist do when the plane lands?

A: She "braces" herself.

Q: What is dentists' favorite dinosaur?

A: Flossosaurus.

Q: Why is it sometimes necessary to get a second opinion from a dentist?

A: Because each dentist has their own floss-ophy.

Q: Why did the FBI raid the dentist's office?

A: To perform a cavity s:

Q: What is the number one reason patients don't show up for root canals?

A: They lose their nerve. :

Q: What's the most popular state for dentists to move to when they retire?

A: Fluorida.

Q: What did the Dentist of the Year get?

A: A little plaque.

Contributed by Dr Verinia G. Mawlong



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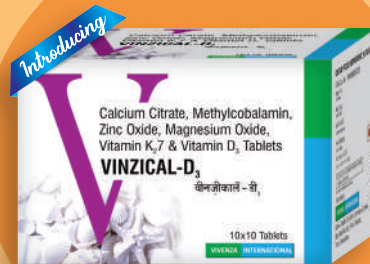


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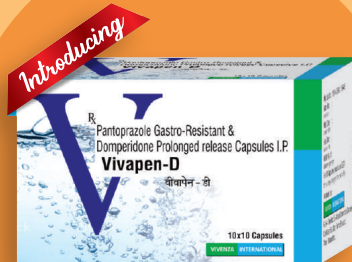
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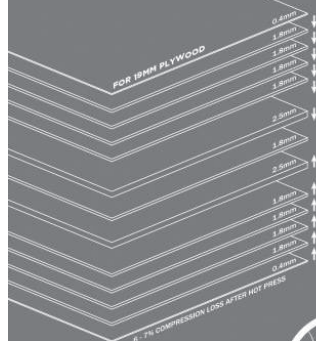
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