

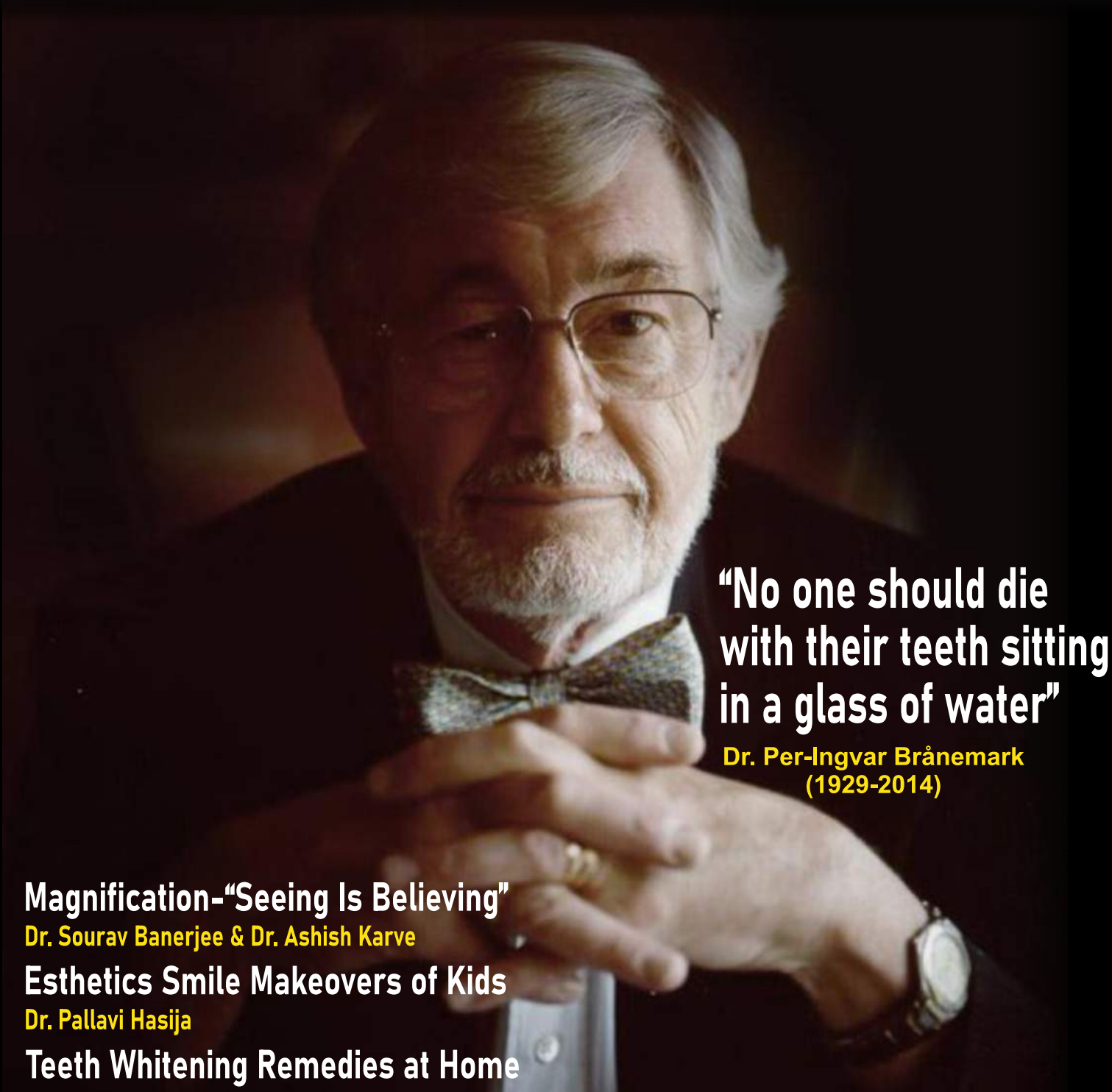


DENTAL 360

PREVEST DenPro®
THE FUTURE OF DENTISTRY

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A portrait of an elderly man with white hair and a beard, wearing glasses and a dark suit with a patterned bow tie. He has his hands clasped in front of him and is looking directly at the camera with a slight smile.

**“No one should die
with their teeth sitting
in a glass of water”**

**Dr. Per-Ingvar Brånemark
(1929-2014)**

Magnification-“Seeing Is Believing”

Dr. Sourav Banerjee & Dr. Ashish Karve

Esthetics Smile Makeovers of Kids

Dr. Pallavi Hasija

Teeth Whitening Remedies at Home

Dr. Shilpi Behl



Editorial

The great Indian Jugaad.

Innovation and innovative thinking in India is not limited to intellectuals. The Common man is the center of innovative thinking in a country with limited resources. We Indians have an unique way of improvising using scare resources, often referred to as the 'great Indian Jugaad'. We are not new to stories where a Sikh man used a washing machine to make lassi or a poor Indian woman who makes espresso coffee using a pressure cooker. Adversity and scare resources often raise the level of innovative thinking. This process of thinking, broadly called jugaad is synonymous to smartness in many parts of India.

DR. SAI KALYAN
MDS, MS, PHD

Several countries around the world are looking at Jugaad to maximize resources and take a more focused approach towards innovation. But in India, we have not been able to take a giant leap from ordinary jugaad to the true innovative design.

The capitalist corporate forces, standalone academic research centers often look at individualistic solutions to a specific problem. These individualistic approaches often fail in a country which is plagued by lack of research resources. Academic centers funded by government agencies make substantial progress, but often fail to translate their design to a finished product. On the other hand, the industry has its own way of running its research without substantial guidance from the academic sector.

The next big step towards Indian innovation is not possible if we don't collaborate. Academic institutions, industry and thinking individuals should join hands, collaborate, share and create a platform for groundbreaking Innovations. We should also incorporate the concepts of the "great Indian Jugaad" into our thinking process as it helps us to focus on the real problem, real requirements and thereby enabling us to take a giant leap from "the ordinary" to "Disruptive Excellence"

Dr. Sai Kalyan, editor in chief.

ABSTRACT

Traditionally endodontics was considered as a “blind procedure” where more emphasis was held to the tactile sensation rather than actual visualization into the pulp chamber. Though this article nowhere downplays the importance of manual perception but attempts to draw equal attention towards the need of actually seeing inside the pulp chamber with optical aids to magnify and resolve the clinical entities that on one hand enhance the precision and probability to manage a number of clinical situations that were never possible without magnification also on the other hand relieves the physical stress on the operator. This article highlights the wide range of application of the dental operating microscope across the specialties of dentistry.

INTRODUCTION

For many years a dental operating microscope was considered a mere addition to the practice. But recently this trend seems changing where a dental operating microscope is being considered a more basic armamentarium. Though the effective application of a DOM needs a standardized approach which is currently lacking. Most of the user information is either available from the manufacturers or individual opinion leaders. I feel a more standardized approach towards using a DOM may popularize the use among the clinicians. The aim of the article is to throw some light on the advantages that magnification can add to your practice. Though the advantage of DOM can be exploited in almost all the specialties of dentistry, here we will be sharing most of its application in the field of Endodontics and Restorative dentistry.

LIMITATIONS OF THE HUMAN EYE

Prior to we move into the details with DOM let's try to understand the limitations of the human eye. The human eye has a power of 60 D and a resolution of 0.2 mm or 200 microns (1 mm = 1000 microns). Resolution is the ability to discern to points. Magnification is making the object appear bigger and closer. Dentistry needs resolving power above 200 microns to appreciate details of clinical relevance to diagnose and deliver precision. Some magnification can be achieved with the unaided eye even that is just by moving closer to the object of interest. In clinical dentistry stooping over the working field is disadvantageous in a number of ways,

- (I) It develops strain in the eyes due to decreased frequency of blinks (essential for lubrication) and excessive convergence resulting in overworking of the ocular muscles.
- (II) Unyielding posture that leads to undue fatigue and musculo-skeletal disorders of the neck and spine.
- (III) Obvious displeasing experience for the patient where the dental surgeon is stooping over.
- (IV) Technically though some magnification is achieved there is no appreciable increase in resolution hence no actual enhancement in precision.
- (V) In long run such posture may be deleterious to the overall health of the clinician.
- (VI) In the current pandemic scenario of Covid-19 working as

much away from the patients' mouth is recommended to be safe for the obvious reason that doesn't need special mention though.

THE DENTAL OPERATING MICROSCOPE (DOM)

Introduced for over four decades now the DOM has undergone clinical metamorphosis. If the magnification aspect is kept aside the prototype designs were lacking on ergonomics and confocal illumination. An angulated illumination compromised on the capacity of the microscope to achieve the depth of field, resolution and produced shadow for the obvious reasons. Also the arrangement of the binoculars did not support sitting and four handed dentistry which are now more than a regular norm to practice stress free, quick and precise dentistry. It has been studied that in the span of the carrier most of the dentists face musculoskeletal issues mostly related to the neck and the spine. Microscope invariably helps in reducing the same at the same time enhancing the precision with which the treatment is delivered. So in the most simple words what microscope does is brings the object closer and resolves the details that too at your comfort when the clinician is sitting upright with his /her neck aligned upright with the spine, shoulders relaxed and the eyes are at parallel (a major difference with loupes where the eyes converge). Parallel vision lets you view as if the object is at infinity without much optical accommodation. Hence even following extended hours of work the eyes don't feel fatigued.

CLINICAL APPLICATION

DOM has gained much wider clinical application across the specialties in dentistry. All it needs is to develop the much needed skill of “Hand Eye Mirror” coordination which obviously comes with the right training and practice. Skillful and maximum use of the DOM is best defined as a gradual learning curve. It is well quoted in various literatures on magnification that a human eye cannot resolve details less than 200 microns, whereas the film thickness of most luting cements is about 25 microns (0.025 mm) and an open margin even slightly lesser than 0.2 mm, though it has a considerable clinical impact, will not be appreciated by the human eye. Hence to be able to appreciate and deal precisely with the changes at early stages DOM becomes an indispensable tool. DOM comes in the magnification range of 4x to 40x. The magnification transition could be a step changer or a continuous transition variant. The magnification 4x to less than 10x is considered as low, 10x to less than 25x as mid-range and 25x and above as high. It is practically not possible to instrument at magnification beyond 30x and this high magnification is used to mostly visualize in inspect. Most of the restorative and surgical procedures are preferably done in the low magnification range including the micro-suturing, though procedures as Apisectomy may need the clinician to work in the mid-range magnification. Procedures as broken instrument retrieval mandates the DOM to be mostly used in the min-range and high magnification with frequent shuffling between the range, deeper the broken segment is lodged higher the magnification needed to visualize it and work the ultrasonic tips precisely such that to disengage the fragment and at the same time preserve the precious root dentine and avoid mishaps.

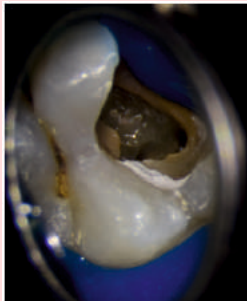


Magnification "Seeing Is Believing"

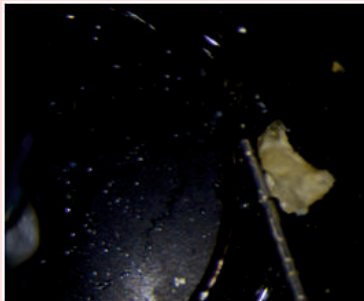
Dr Sourav Banerjee & Dr Ashish Karve

Case -#1

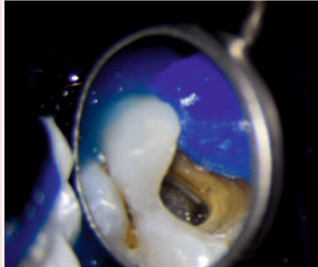
A case of management in Pulp chamber calcification with ultrasonic and under DOM. Following gaining the access in #16 a large crystalline calcific mass could be appreciated that was blocking the approach to the canals (Fig.1a). Ideally following de-roofing a darker pulpal floor should be appreciated. An obstruction free entry to the canals aids in hassle free instrumentation and prevents mishaps. The calcification was removed with ultrasonic instruments by disengaging it from the pulp chamber wall (Fig.1b). Then the canals were located and shaped. Appreciate the floor of the PC following the removal of the calcification in the region of the MB system (Fig.1c). Locating the MB2 and shaping it would not have been possible without removing the calcification (Fig.1d). Microscope helped to manage the case with ease and conservation.



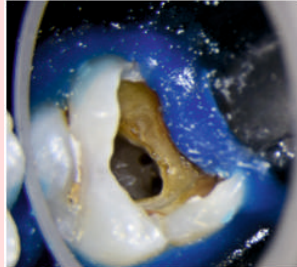
1a. Crystalline Calcification



1b. Gauging the removed calcification against a periodontal probe



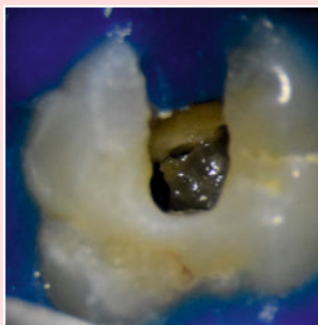
1c. Region of MB system & the dark floor of PC



1d. MB & MB2 located & shaped

Case -#2

Another case of management of pulp chamber calcification under DOM. Following de-roofing of the PC a small calcification was seen blocking the MB system. The removal of the calcific mass with ultrasonic revealed a bleeding spot which allowed locating the MB2 quite easily and quickly. MB2 is otherwise considered to be the most difficult canal to be located, cleaned and shaped.



2a: The Calcific mass

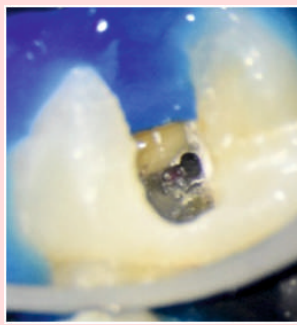
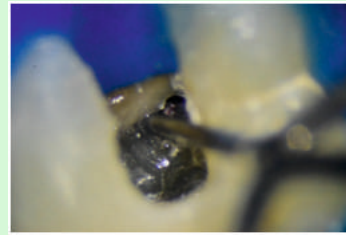
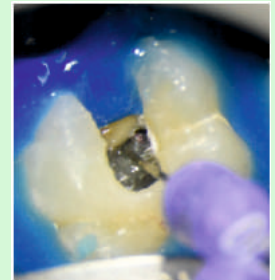


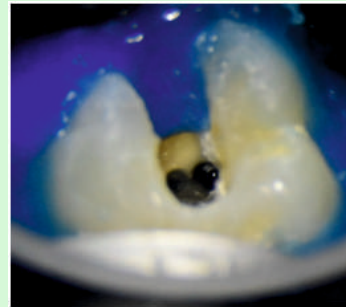
Fig 2b: The bleeding spot just adjacent to MB orifice



2c: Feeling the catch with DG16,



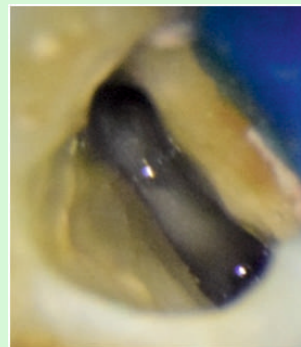
2d: Negotiating with a #10.02 K-file,



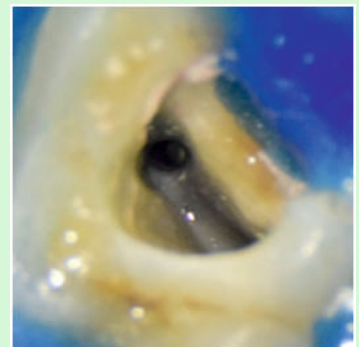
2e: The MB system following shaping

Case -#3

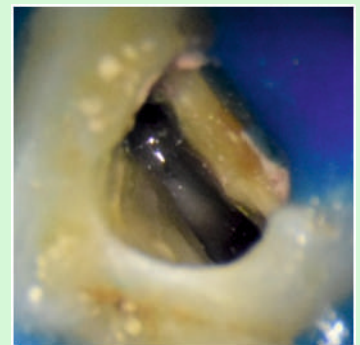
This was an interesting case of Maxillary First Molar with two roots and two canals. Such clinical finding has limited representation in literature where it has been reported to occur in less than 1% cases. Though such finding is relatively common in Maxillary Second Molar. In context of the current topic this case reveals the importance of using multiple diagnostic aids to arrive on a diagnosis. Here even after spending considerable time inspecting the tooth under DOM no evidence of a 3rd canal could be appreciated. In such situation CBCT may add as a valuable tool to reconfirm the clinical findings.



The shape of the PC and the smooth dark floor is a vital clue,



The MB system



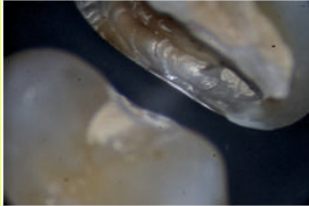
The shape of the PC and the smooth dark floor is a vital clue,



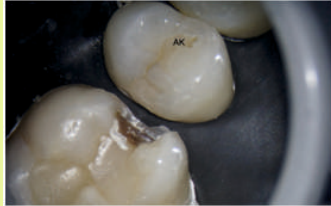
Magnification "Seeing Is Believing"

Dr Sourav Banerjee & Dr Ashish Karve

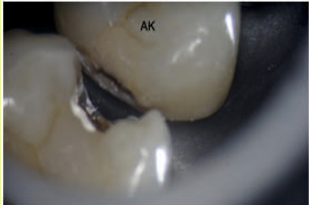
Restorative Dentistry has much application of the DOM. We cannot afford an overhang restoration proximally that may attract plaque and act deleterious to the local periodontium that may ultimately lead to the decay of the adjacent tooth. DOM allows for a precision driven restorative practice starting from inspection into details, checking the rubber dam and matrix band fit, inspecting the contacts and contours post restoration.



Checking the dam inversion & adaptation



Changing the viewing angulation and zooming in reveals a sub marginal ridge cavity on the disto-proximal surface of the 2nd premolar (compare the above two images)



Changing the viewing angulation and zooming in reveals a sub marginal ridge cavity on the disto-proximal surface of the 2nd premolar (compare the above two images)



Checking the fit of the matrix band is paramount as the overhang has to be prevented, the clarity of details and precision may be appreciated (compare the above two images)



Checking the fit of the matrix band is paramount as the overhang has to be prevented, the clarity of details and precision may be appreciated (compare the above two images)

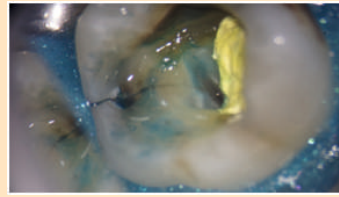
DOM has its application in diagnosis, inspecting the endodontic files for deformation between use, precise coronal disassembly without damaging the underlying crown and many other uses. All that depends on how ergonomically the clinician may use the tool to their advantage.



Coronal disassembly with minimum damage to underlying stump



Coronal disassembly with minimum damage to underlying stump



The crack line can be appreciated following dye application. This holds a vital role in diagnosis of "Cracked Tooth Syndrome"



Inspecting the file before placing in a canal and after withdrawing is an important step to prevent mishap. This aspect is quite easy under magnification

CONCLUSION

Precision driven dentistry cannot be contemplated without magnification. And when we add ergonomics to magnification the Dental Operating Microscope is just indispensable. Working with DOM change the perception of the working field. Ergonomic Magnification is not an adjunct but is an indispensable entity in our clinical practice. Most of the important clinical aspects remain non-discernable by the unaided human eye. It will be not inappropriate to mention that DOM has let dentistry attain a new high with predictability and precision. And of course it mandates here to mention that when we see better we tend to work finer and to achieve working under increased magnification needs specialized tools and it is a learning curve to master the hand eye mirror instrument coordination. These are the four most important elements of Microscope Enhanced Dentistry.

Profile of the Month



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Dr. Pallavi Hasija

Early childhood caries in children presents as badly mutilated dentition. Such grossly decayed teeth can be treated by pulp therapy and placement of endodontic posts, followed by crown.

Rehabilitation of severely decayed primary teeth by crowns is a challenging task. Operator preferences, parental expectations and child's behaviour, affect the decision and ultimate outcome of restorative options undertaken. Commonly used restorative options following endodontic treatment in children include stainless steel crowns and its modifications, polycarbonate crowns and strip crowns.

Polycarbonate crowns have poor retention and due to lack of different shades look artificial in mouth. Strip crowns are although esthetically better than polycarbonate crowns there retention is dependent on the amount of tooth structure remaining after caries excavation. Also technique sensitive resin composite material used with strip crowns demands strict isolation procedures.

In the modern society, the demand for esthetic restorative options is increasing. Tooth-colored durable restorations are of primary concerns to parents. Prefabricated Zirconia crowns are relatively new in pediatric dentistry, introduced in 2010. They are recommended both for anterior and posterior tooth.

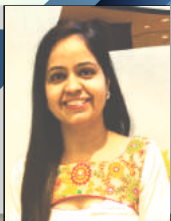
Zirconia is a crystalline dioxide of zirconium that has mechanical properties similar to metal and its color is similar to that of teeth. Zirconia crowns are more translucent and almost five times stronger than porcelain fused to metal crowns as zirconia crown are milled from a single densely sintered block of crystal. Zirconia pediatric crowns require a more aggressive approach with subgingival preparation margins to restore the primary teeth. Because Zirconia crowns cannot be crimped, clinician must prepare the tooth to fit the crown.

To overcome the shortcomings of zirconia crowns, very recently a minimally invasive highly esthetic pediatric crown was introduced that is produced from a laser sintered and vitrified composite. These crowns are preformed crowns that mimic the anatomy of pediatric tooth, improve the flexural strength of crown. These prefabricated crowns permit quick and safe treatment with minimum tooth preparation. They offer the advantage of being easy to remove, as they can be cut in a way similar to dentin.

This short article highlights the more esthetic options available these days for building up the smile of young ones in a more beautiful way that boosts up their confidence. A practice of incorporating these treatment options in our set up might alleviate esthetic concerns of child parents.

DR PALLAVI HASIJA

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Dr. Pallavi Hasija did her graduation from I.T.S Dental College, Murad nagar, Ghaziabad in 2010. There after she did her post graduation in Pediatric and Preventive Dentistry. She is a consultant pediatric dental specialist to various dental clinics in Delhi-NCR.

She has received various laurels doing her postgraduation scientific presentations. She also has national and international publications to her achievements. She is a life member of Indian Dental Association, Indian Society of Pediatric and Preventive Dentistry, Indian Society of Dental Traumatology. She can be contacted at Email: hasijapallavi@yahoo.com, Contact no. 9811315503

Dr Shilpi Behl

According to the American Academy of Cosmetic Dentistry, most people want their smile to be whiter and brighter. It's no surprise that dental whitening and at-home tooth whitening treatment have become so popular!

There are lots of home remedies and ways you can use to brighten your smile that are affordable and easy.

some best ways of teeth whitening at home.

1. use of teeth whitening toothpaste: these toothpastes contain a chemical Blue Covarine which sticks to teeth surface and creates an optical illusion that makes teeth appear less yellow They may also contain mild abrasive like silica that removes the surface stains. Teeth whitening toothpaste must be used twice a day for 4-6 weeks to see results.

2. Teeth whitening/ Bleaching Kits: Many teeth bleaching kits are available at a dental clinic and online for home use. They contain chemicals like hydrogen peroxide or carbamide peroxide which helps in removing the yellow stains and whiten the teeth.

3. using toothpaste with baking soda: Baking soda acts like an abrasive which polished the teeth surface and removes the stains. Direct use for baking soda may harm the teeth.

4. Brushing and flossing twice everyday and keeping good oral hygiene.

5. Avoiding foods & drinks that cause teeth like coffee red wine, energy drinks etc. Try to rinse your mouth immediately after consumption of such foods / drinks to avoid teeth staining.

♦ Teeth whitening toothpaste and bleaching gels should be used only by adults (18 yrs & above)

♦ Children below the age of 18 must practice good hygiene and should seek the advice of their dentist if they suffer severe staining of teeth.

♦ Anyone with conditions like - Sensitivity of teeth, gum problem, gum recession, Mobile teeth, People with artificial teeth like crowns or veneers SHOULD NOT USE ANY KINDS OF BLEACHING GELS. They must seek the advice of their dentist.

♦ Teeth bleaching with home kits / gels must be done only once in 6-7 months.

DR SHILPI BEHL

BDS BSOM (UK) HNODS (UK)



Dr. Shilpi is a Dentist & Medi-Cosmetologist with her clinics running successfully in Delhi, Gurgaon & Dubai and catering to patients from across the globe .She conceived the idea of Global Dental Tourism after being exposed to cutting-edge and advanced expensive dental technology. Owing to her passion and achievement in the field of dentistry and cosmetology, Dr. Shilpi is often known as 'Aesthetic Pandit' or 'Facial Architect'.

Prevest update

PREVEST DenPro®
THE FUTURE OF DENTISTRY



Industry academia Partnership: Prevest DenPro inks An MOU with Terna Dental College

Prevest DenPro limited and Terna Dental college, Navi Mumbai signed an MOU to form a nucleus for promoting excellent quality manpower in the fields of Dental science and allied sciences with special emphasis on Biomaterials, Drugs, herbals, Regenerative science and related fields.

The scope of MOU was to define a mechanism to promote interdisciplinary research; impart skill oriented training and other programs to benefit student and staff of both organizations; joint research and academic activities leading to academic excellence; new knowledge generation; innovative technology development; professional skill and competence development; vocational training capacity building and many such synergies of interdisciplinary research through collaboration and networking.