

DO WE NEED NATURE IN DENTISTRY?

ABSTRACT

In dentistry we intend to reconstruct the lost structures and restore the functions in the most natural way we can. Understanding 'The Nature' in Dentistry is the first step towards achieving this goal. The natural functions of the oral tissues and its development has a key role in treatment planning in dentistry. This article reviews some of the current possibilities of this concept in our routine practice of dentistry.

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Do we need Nature in Dentistry?

The rules and laws of Nature always make us think about our importance among the plethora of species in this world. Human beings have better intelligence, sophistication, communication, among all the better developed animals in this planet. Each and every element of the stomatognathic system is tailor made to perform its specific function, whether it is the teeth in occlusion, periodontium, jaw bones, salivary glands, tongue, muscles of mastication or the Temporomandibular Joint.

In dentistry we intend to reconstruct the lost structures and restore the functions in the most natural way we can. Understanding 'The Nature' in Dentistry is the first step towards achieving this goal. 'Biomimetics' is a terminology coined to get a proximity to nature for all the restorative procedures we carry out in our practice¹.

The natural way of Stomatognathic Development

The Functional Matrix Theory by Dr. Melvin Moss explains how naturally our organs mold to adapt to the functions during each growth stage. From the day a new born suckles to breast feed, nature sets a pattern amicable for the proper growth and development of the human body.² The eruption of teeth, development of jaws, growth spurts, all have an impact on the proper positioning of teeth in the dental arch to achieve best contacts and occlusion which becomes the future backbone for a functionally good dentition.³

The tongue plays an important role in all these, which above all acts as the janitor of the oral cavity. With its constant and rigorous movements, make sure that teeth are cleaned on all surfaces possible with saliva as the cleansing solution in between. Tooth shape, size, texture, modulus of elasticity, wear resistance, contacts and contours and occlusion are also nature's selection to perform the tough task of mastication, along with need of looking good with the concept of esthetics and proportions set by human civilization and social hurdles.⁴

Early detection and correction of tongue ties and lip ties in new born can correct many issues with breastfeeding which help the child to gain the natural source of immunity at an earlier age itself. Proper guidance for the mother during this time helps her put into practice good methods of feeding, can relieve her from the early breast feeding issues like breast pain due to engorgement.

The need of preservation

Understanding the role of nature in the tissues what we work with, Preservation becomes the key role in operative procedures. DeVans Dictum in Prosthodontics states 'Perpetual preservation of what remains is most important than the meticulous replacement of what is lost.' In other words, the principle of tooth preservation in operative procedures is gaining more attention. With the advancement in magnification and more organized way of practice these principles are feasible in every procedure we execute on a day to day practice. Some of the common examples from our routine Conservative Dentistry and Endodontics are given below.

Conservative Restoration of Vital teeth

The earlier concept of 'Extension for Prevention' is more of a myth now. Bonding techniques and adhesive materials have improved, which can restore even the smallest to the larger preparations and also the stress bearing areas. The use of improved posterior composites and better matrix systems has been a promise to restorative dentistry.

The tough to restore deep proximal preparations of teeth is now manageable with indirect composites and Lithium di-silicate bonded restorations. The earlier concept of root canal therapy and crowns for deep caries lesions or difficult deep proximal caries is no longer justified. Intentional root canal therapy also has to be avoided as much as possible to preserve the natural consistency of the teeth and periodontium.⁵



Lithium di-silicate resin bonded restorations with buccal and lingual margins at or above the heights of contours.



Vital Pulp therapies

Tooth with vitality, but still with a prognosis are given priority for procedures which help to maintain the vitality of the pulp tissue. Deep caries management has a breakthrough with the introduction of bioceramic materials. Pulpotomy procedures have better prognosis with biocompatible materials like MTA and Biodentin.⁶

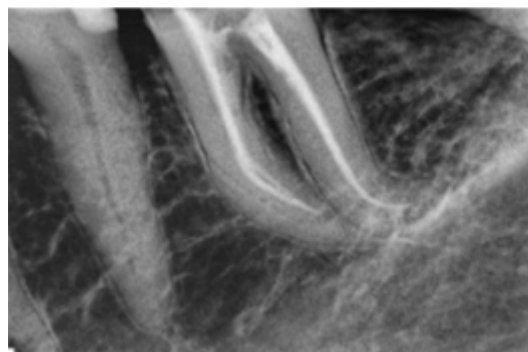


Coronal pulpotomy and apexogenesis performed with the intention of preserving the vitality of root canal pulp tissue in a 8 year old child.

Conservative Root canal Therapy

Starting from the design of conservative access to the minimal removal of root dentin, many studies indicate better structural integrity for root treated teeth. Today's Endodontics depend

more on irrigation techniques than over preparation.⁷



Comparison of the older wide preparations with the newer concept of limiting the taper of the preparations.

Conservative Post Endodontic restorations

Concept of crown for each and every root canal treated tooth is now a history and no longer an evidence based treatment. With the breakthrough in ceramic technology and concepts of adhesion, conservative restorations are now possible with minimal tooth loss after endodontic therapy. Newer modalities include composite bonding, Laminates, Onlays, Overlays and Endo crowns which can preserve tooth structure.⁸



Porcelain laminate veneer act as an esthetic post endodontic restoration for this case with a root canal treated UR1 instead of a full crown

In post and core restorations also, more conservative preparations are encouraged with the use of fiber reinforced composite posts which have the same modulus of resiliency as that of the root dentin and can be bonded to the tooth structure giving a 'Mono-block like effect'.

CONCLUSION

Understanding the natural functions of the oral tissues and its development has a key role in treatment planning in dentistry. Care should be exercised to preserve natural tissues to the maximum. 'Less is More' is the new normal in Conservative and Operative Dentistry. Nature

needs to be respected and preservation is the key. Skill and knowledge of the materials we use is the game changer which helps us to implement these principles in our routine dentistry.

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