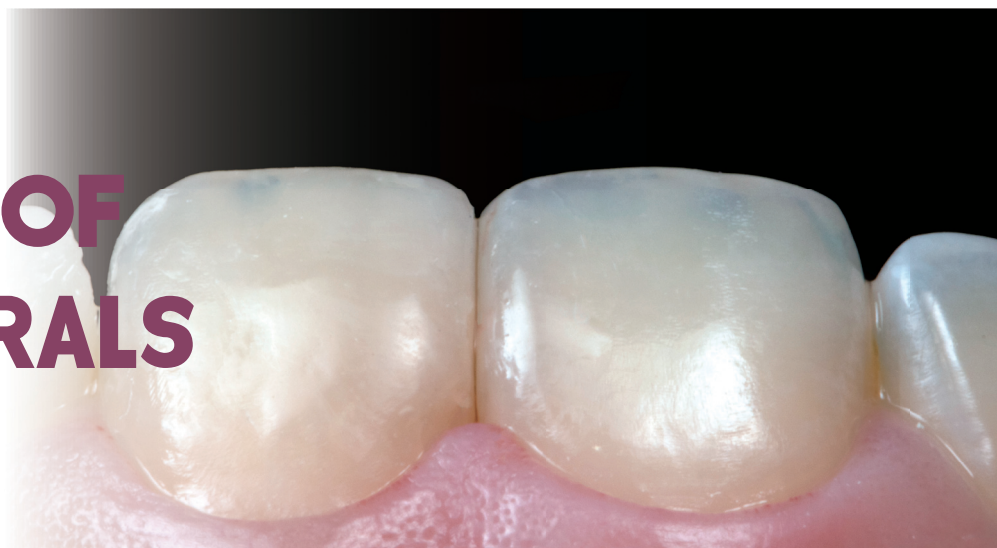


THE STORY OF TWO CENTRALS

By Dr Anand Narvekar



INTRODUCTION

The proportion and symmetry of central incisors are paramount to facial beauty and individual characteristics of a smile. Hence, optimal restoration of central incisors (aesthetics and function) without compromising the natural tooth structure remains a challenge in routine clinical practice.

In treatment planning, we, as clinicians, often make a crucial decision: choosing between direct and indirect restoration especially for an endodontically-treated maxillary central incisor.

As a treatment option, direct restoration with resin composites has the following benefits:

- Helps preserve natural tooth structure
- Provides more control over the final aesthetic outcomes
- More affordable compared with indirect restorations

When restoring maxillary central incisors, special attention should be given to the key elements determining the success of final restoration: accurate shade match, anatomical form, establishing contact, curvature of the smile line, and meeting patient's expectations.

The following clinical case highlights the story of two maxillary central incisors where one tooth was endodontically treated while the other had Class III decay on mesial and distal surfaces.

A simplified restorative protocol was adopted to overcome the challenges and achieve the desired aesthetic outcome (Fig. 1).

CASE DESCRIPTION

A 24-year-old female patient visited the clinic with a complaint of black



Fig. 1: Before and after



Fig. 2: Caries lesion on tooth 11 (mesial) and prominent caries lesion on tooth 21 extending to the palatal with loss of mesial contact



Fig. 3: Caries lesions on tooth 11 (mesial and distal) and tooth 21 (palatal view, mirror reflected)

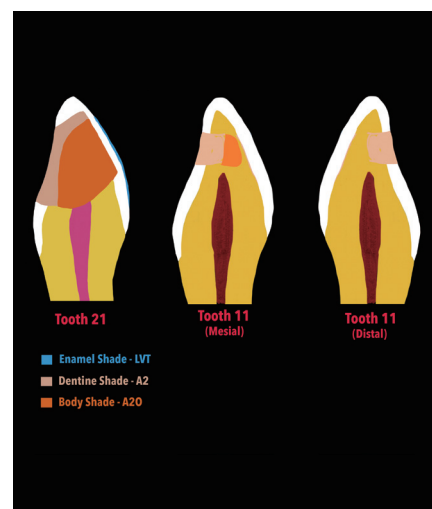


Fig. 4: Illustration of the direct restoration plan and layering technique with Beautifil range of bioactive composites (Beautifil Injectable X, Beautifil II LS and Beautifil II Enamel)

discolouration on the upper front tooth with no signs of associated pain.

Clinical examination revealed caries lesions on mesial and distal surface of tooth 11 and a prominent caries lesion on tooth 21, involving a larger palatal surface with loss of mesial contact area resulting in diastema (Figs. 2,3).

Tooth 21 tested negative to vitality test with no pain on percussion. Its periapical radiograph revealed a periapical lesion and angulated radiographs showed a radiolucent lesion approximately 5mm by 5mm in size.

TREATMENT PROCEDURE

Phase 1: Root canal treatment on tooth 21

Caries removal and access opening on tooth 21 was followed by cleaning and shaping of the canal. Calcium hydroxide paste was inserted until the apex to facilitate the healing of the periapical infection.

Fifteen days later, the patient was recalled for review on tooth 21 and the calcium hydroxide paste was removed. After confirming that the canal is dry, obturation was done with lateral and vertical condensation to ensure a 3D seal.

Phase 2: Restoration of teeth 11 and 21

The patient was recalled after three days to restore the mesial and distal cavities of tooth 11 and accomplish the final restoration of tooth 21.

Rubber dam isolation with floss knots were placed to obtain effective isolation and avoid contamination of gingival crevicular fluid.

Following through with the direct restoration plan, layering technique was performed using Beautifil range of bioactive composites (Beautifil Injectable X, Beautifil II LS and Beautifil II Enamel) (Fig. 4).



Fig. 5: Complete caries removal from teeth 21 and 11 (palatal view, mirror reflected)



Fig. 6: The 2mm-3mm bevel on teeth 11 and 21, for blending of the final composite restoration (palatal and labial view)



Fig. 7: Beautifil Injectable X shade A20 (opaque body shade) injected and shaped on palatal surface of tooth 21, a small quantity applied on the mesial cavity of tooth 11



Fig. 8: Packable composite Beautifil II LS shade A20 was placed on the palatal side of tooth 21, leaving some space for final composite layer



Fig. 9: Maxillary labial view after placing body shades from the palatal



Fig. 10: Bioclear Class III anterior mesial matrix was placed and Beautifil Injectable X shade A2 injected to form a cervical heap and secure the matrix



Fig. 11: Beautifil Injectable X shade A2 and Beautifil II LS shade A2 packable composite were placed using the snowplough technique



Fig. 12: The mesial matrices were removed to place the final layer of Beautifil II Enamel shade LVT and shaped on the mesial surface of both teeth



Fig. 13: Bioclear anterior matrix was placed on the distal of tooth 11 and the shallow cavity was restored from the palatal side with a single shade of Beautifil Injectable X A2

RESTORATION PROCESS OF TEETH 11 AND 21

After complete caries removal on mesial and distal surfaces of tooth 11, a 2mm-3mm bevel was created on the buccal and palatal side of tooth 11 and 21 using diamond points.

This was done to achieve perfect blending of the final composite restorations (Figs. 5,6).

Palatal aspect

The gutta-percha in the orifice of the endodontically-treated tooth 21 was smoothed and cleaned to ensure an optimal seal. Selective etching was performed with 35% phosphoric acid, and the sixth-generation bonding system (Shofu

FL Bond II) was used for the adhesive procedure.

After priming and bonding, an injectable high-strength bioactive direct restorative, Beautifil Injectable X shade A20 (opaque body shade), was injected and shaped on the palatal surface of tooth 21 (Fig. 7).

Tip: Selecting an opaque body shade for the palatal surface helps to block the light transmission through the labial surface of the tooth to add depth of colour. It also masks the discolouration caused by a non-vital root canal treated tooth that tends to occur over time.

For the build-up of the palatal contact area

of tooth 21, a packable composite, Beautifil II LS shade A20, was placed; leaving enough space for final composite layer when restoring the contact area from the labial aspect (Figs. 8,9).

Restoration of tooth 11 consisted of two cavities on mesial and distal surfaces. Small quantity of Beautifil Injectable X shade A20 was injected on the deeper mesial cavity which required layering. The distal shallow cavity was restored with a single shade using Beautifil Injectable X shade A2 (Universal body shade).

Labial aspect

To restore the central incisors efficiently and achieve an aesthetic diastema closure at the



Fig. 14: The restorations after contouring with fine diamond bur and Super-Snap purple disk



Fig. 15: The restorations after pre-polishing and removal of surface scratches with OneGloss



Fig. 16: Direct Dia diamond polishing paste used with SuperSnap buff disk to achieve the final high-gloss with enamel-like lustre

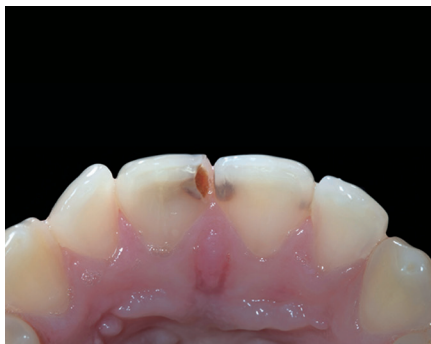


Fig. 17: Before treatment, after cavity preparation, and final restoration (reflected palatal views)



Fig. 18: Maxillary buccal view of the final restoration

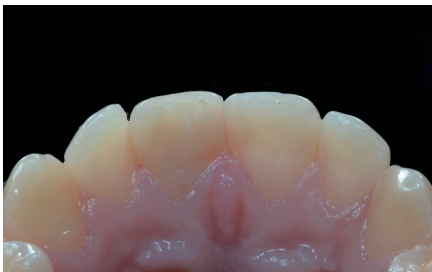


Fig. 19: Retracted maxillary palatal view (mirror reflected) showing natural aesthetics, contour, and contact



Fig. 20: Close-up showcasing the restored central incisors with natural aesthetics and surface lustre



Fig. 21: Creative angle of the final restorations

same time, the Bioclear Class III anterior mesial matrix was placed and Beautifil Injectable X shade A2 was injected in the cervical area. Then, it was light-cured to create the cervical heap and stabilise the matrix (Fig. 10).

Tip: Beautifil Injectable X is an ideal material to form a cervical heap, securing the matrix perfectly and facilitating easy placement of the composite materials.

After placing a wedge, Beautifil Injectable X shade A2 and Beautifil II LS shade A2 packable composite were placed inside the matrix using the snowplough technique (Fig. 11).

The mesial matrices were removed to place a final thin layer of Beautifil II Enamel shade LVT (Low Value Translucency) and shaped on the mesial surface of both teeth (Fig. 12).

After achieving the anatomical form and final light cure, the Bioclear anterior matrix was placed on the distal surface of tooth 11. The distal shallow cavity was restored from the palatal side using a single shade of Beautifil Injectable X A2 (Fig. 13).

Tip: The use of Beautifil Injectable X composites helps to conveniently inject and

shape the material where you need it; saving chair time and increasing patient comfort.

Finishing and polishing protocol

After removing the rubber dam, anatomical contouring and gross finishing was done with a tapered fissure fine diamond (red band) and the Super-Snap purple disk (Fig. 14).

Surface texture and high points were checked with 40-micron articulating paper and smoothed with a Dura Green stone.

Pre-polishing and removal of surface scratches from the finishing process was achieved with OneGloss two-in-one impregnated silicone polisher (Fig. 15).

Super-polishing, Direct Dia diamond polishing paste with Super-Snap buff disk was used to achieve a high gloss and replicate the enamel-like lustre on the restorations (Fig. 16).

CONCLUSION

The two central incisors restored in the above clinical case consisted of three cavities that varied in size, shape, and depth: post endo build-up on tooth 21, deep Class III mesial cavity and shallow distal cavity on tooth 11 (Fig. 17).

To achieve highly aesthetic restoration, it is crucial to understand the properties of materials used and the interplay of shades especially when using incremental layering technique.

Bioactive composites were used in this case for their additional advantage of minimising caries risk with no compromise on the aesthetics and function.

The new generation of injectable composites, Beautifil Injectable X, and low shrinkage packable composite, Beautifil II LS, packed using incremental layering technique with Bioclear matrices result to restorations with good contact, contour, and natural aesthetics.

Following a stringent finishing and polishing protocol is vital in achieving the enamel-like lustre and increases the longevity of restorations (Figs. 18-21). **DA**

About the Author



Dr Anand Narvekar, graduated in 1996 from Pune, India, has immersed himself in the field of dentistry with a special focus on aesthetic dentistry. His special interest lies in treating complex full-mouth rehabilitation and smile design cases. His keen eye for aesthetics extends beyond dentistry. He is a globally acclaimed photographer with his photographs published in industry-wide publications. He is a fellow, advocate, and trainer for MiCD (Minimally Invasive Cosmetic Dentistry) Global Academy, a key opinion leader for a number of companies, and conducts workshops for articulators, photography, and direct resin restorations.