

Composite Artistry in Everyday Clinical Practice: Class IV Restorations with BioSmart Restoratives

Written by Dr. Nattawit Niyomsujarit, DDS, M.Sc. Operative Dentistry Mahidol University, Thailand

As clinicians, we are often challenged to provide optimal aesthetics and function that meet the patients' expectations. With the increasing demand for conservative treatment protocols and prevention of caries, I used the Minimally Invasive Cosmetic Dentistry (MiCD) concept in my clinical practice as it promotes preservation of tooth structure with the "Do No Harm" patient centric philosophy which was introduced when I was studying in Mahidol university. Therefore, it is important to prepare an individualised treatment plan and select suitable materials with a focus on achieving the desired aesthetics that help increase the longevity of the restorations.

The following patient case is a common clinical situation routinely seen in dental practice where the Shofu® range of biosmart composites with its patented S-PRG filler technology was used to showcase composite artistry with the natural layering technique.¹

Beautifil II universal biosmart composites have the ability to release a unique combination of ions that inhibit plaque accumulation and provide an acid buffer effect to help stabilise pH in the oral environment, hereby decreasing the risk of secondary caries² while maintaining the aesthetics, physical and mechanical properties of nano-hybrid materials, making it an ideal choice to achieve natural life-like long lasting restorations.

Patient case

A 22-year-old male patient visited my clinic with a chief complaint of poorly filled restorations on his upper central incisors. More than 10 years ago, both his upper central incisors had been restored post trauma with tooth coloured materials (Fig. 1).



Fig. 1: Pre-operative poorly filled central incisors

Intraoral examination revealed that the old composite restorations had acceptable shades but poor size and shape. Tooth no. 11 was larger than 21 and the incisal edge of both central incisors were not harmonised with the patient's natural lateral incisors. Both teeth responded positive to the vitality test and their periapical status were within normal limit in the radiograph.

The patient was advised that the most suitable treatment plan would be to replace the old restorations with BioSmart tooth coloured restorations using the natural layering technique.

Materials used

After careful examination and shade confirmation, the following materials were selected for the Natural Layering Technique (NLT):

- Composite Materials -
 - Dentin Layer - Beautifil II Opaque shade A20
 - Enamel Layer - Beautifil II Enamel shade T
- Adhesive: FL-Bond II
- Finishing & Polishing: Super-Snap Xtreme technique kit
- Super Polishing for high gloss: Super Buff impregnated buff disk

Restorative approach

Upon removal of the old restorations on tooth no. 11 and 21, around 2/3 of tooth contour was visible in both fractured central incisors (Fig 2).



Fig. 2: After removal of old restorations on tooth nos. 11 and 21

The labial enamel margin was prepared with a long bevel using a tapered diamond bur. FL-Bond II adhesive was applied in combination with the selective enamel etching technique while the palatal shell was built with Beautifil II Enamel shade T (Fig. 3).



Fig. 3: Palatal shell created with Beautifil II Enamel T

Build-up of the dentin layer was done using Beautifil II Opaque shade A20, keeping sufficient space for the labial enamel layer (about 0.5-1 mm). In order to achieve a seamless blend between the tooth and restorative margin, the dentin layer was placed to overlap the incisal side of the bevel (Fig. 4).



Fig. 4: Build-up of dentin layer using Beautifil II Opaque A20

The Beautifil II Enamel shade T was used as the final enamel layer and placed carefully to ensure good anatomical contour and surface texture. This method helps to prevent over filling of the restoration and reduces chair time during the finishing and polishing.

After being completely light cured, the finishing and polishing of the restorations was done with Super-Snap Xtreme kit. The final step of polishing with the SuperBuff impregnated buff disk helped to achieve a high gloss surface to match the adjacent natural tooth (Figs 5-6).



Fig. 5: Final restoration with life-like aesthetics.



Fig. 6: Final restoration showing natural light transmission.

Conclusion

The above clinical case illustrates the life-like aesthetics that can be achieved through adopting the Minimally Invasive Cosmetic Dentistry (MiCD) concept with BioSmart composite material. Beautifil II composites have a simple shade system with a variety of translucent shades that help to create enamel and dentin characterisations in addition to fluoride release and prevention of plaque accumulation. These features provide patients with aesthetic restorations and further caries protection, making it a great material of choice for the modern dentist. **DA**

References:

1. Dietschi D et al. Shading concepts and layering techniques to master direct anterior composite restorations: an update. Br Dent J. 2016 ;221(12):765-771.
2. Gorden V et al., A clinical evaluation if a self-etching primer and giomer restorative material: results at 8 years. J Am Dent Assoc, 2007,138(5):621-627



About the author

Dr. Nattawit Niyomsujarit graduated with 1st class honours and obtained his masters in Operative Dentistry from the Mahidol university, Thailand. Where he currently works as a full time lecturer in Operative Dentistry and Endodontics Department. He is passionate about aesthetic dentistry and advocates a minimally invasive patient centric approach towards creating life-like direct restorations.