Perfecting aesthetic techniques for replacing anterior class IV restorations.

by Dr. Paulo Monteiro

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Dr. Monteiro is a member of the Styleitaliano™ group. In this case he describes the use of a simple direct composite resin layering technique and shares some clinical hints and tips to achieve highly aesthetic natural results. Application of the Styleitaliano™ technique demonstrates the key steps including, shade selection, correct use of opacity and shade choice in layering composite resin to achieve predictable aesthetic results.

About the case

A 30-year-old female patient visited the dental surgery, saying she did not like the appearance of restorations on teeth 11 and 21 because of a margin between the restoration and sound dental tissue and the colour and surface texture which had a lot of porosities. She was interested in ceramic veneers, believing they would provide optimum aesthetics and durability, and we also explored using composite resins, stressing the importance of preserving the natural tooth structures. To ensure the patient could make an informed decision, we discussed the advantages and disadvantages of both treatment options. In the end, the patient chose composite restorations. We firstly took impressions of the two central incisors, then made a wax-up that was used for a silicone index model.
We used this model to design the new restorations. To ensure predictability of the final aesthetic result, as with all concepts applied through Styleitaliano™, we determined the shade using a Vita Classic shade guide, allowing several shade combinations to be identified before the treatment began. As a final shade of A1 was needed, a shade combination of A1 dentine and A3 enamel (3M™ Filtek™ Supreme XTE) was chosen. After shade selection, we placed the rubber dam and removed the old restorations. To ensure that only enamel was etched and not dentine, a selective enamel etching technique was implemented using Scotchbond™ Universal Adhesive from 3M Oral Care.

Shade selection with Vita Classical shade guide.

Isolation of operating field with rubber dam.

Marking of extents of old restoration for easier detection.

After removing old restorations, we prepared labial and inter-proximal bevels.

Use of the silicon guide previously obtained from a wax-up.

Selective enamel etching using Scotchbond™ Universal Etchant.
Implementing the composite layering technique

We began the layering procedure on the palatal surface using 3M™ Filtek™ Supreme XTE Universal Restorative. To achieve a higher level of translucency on the incisal third, we used a translucent shade of enamel. The layering was approached using achromatic enamel and a controlled thickness technique. We then applied the next layer of enamel to the interproximal walls. Again, Filtek Supreme XTE was used and the shade was A3 enamel. To achieve anatomic shape, we applied the composite very thinly to the interproximal walls using a posterior matrix. Due to its convex shape, we could apply the enamel much more simply. When layering the incisal edge, we used very thin increments, this time with a flowable white restorative. To achieve the level of opacity that the patient required, we also applied dentine opacity composite resin to the central incisors. Once the dentine was layered, it was compressed and compacted. To create space for the final enamel layer, we used a Misura instrument which had been co-developed by LM and Styleitaliano™. Once the dentine layer thickness was calibrated, the incisal portion of the dentine was shaped according to the silicone index model and wax-up.
After applying the final enamel layer, we initiated Filtek Supreme XTE A3E light curing for 10 seconds with Elipar™ DeepCure-S LED Curing Light.

Applying the dentine layer using Filtek Supreme XTE A1D. For volume control, the Misura instrument was used to calibrate the dentine and leave a 0.5-mm space for the labial enamel.

Creation of the dentine incisal anatomy (mamelons) with the LM Arte Fissura.

To increase translucency at the incisal edge, a small portion of Filtek Supreme XTE CT was applied between the dentine layer and incisal halo.

Polymerisation of the dental composite resins was conducted using a 3M™ Elipar™ DeepCure LED Curing Light from 3M Oral Care. To achieve extra translucency, we filled the space between the dentine and incisal edge with translucent enamel. After additional light curing, a final A3 layer of enamel and another round of light curing, we covered the central incisors with glycerine gel. After one last light cure for 40 seconds, we conducted the final stage of polishing. The last hurdle was to ensure that the mesial and distal line angles and macrotexture were correct. The angle lines were achieved with 3M™ Sof-Lex™ Finishing and Polishing Discs, combining the use of different abrasive grades and various burs to ensure the correct macrotexture. We then removed the rubber dam and excess material. The patient was extremely happy with the outcome and the conservative nature of the treatment. By using quality equipment and simple, predictive techniques, we achieved the desired aesthetic result.
Dr Paulo Monteiro DMD, MSc (Lisbon, Portugal)

“My passion for aesthetic dentistry began when I attended the last year of the Dental Medicine course in 1998 at the Institute of Health Sciences Egas Moniz in Portugal. In 2005, I completed my specialisation in Aesthetic and Restorative Dentistry at the ISCSEM, Lisbon, Portugal. In 2010, I finished a Master’s degree in Dental Medicine and I’m currently taking a PhD in Dentistry at Universidade de Santiago de Compostela, Spain.” Paulo is author and co-author of many clinical publications and has lectured in more than 200 international courses and congresses in aesthetic dentistry and is a member of the Styleitaliano™ Group.

Contact: ▲ Dr. Paulo Monteiro  ➤ paulojorgemonteiro@yahoo.ca

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