

3M[™] Health Care Academy

Aesthetic and Conservative Bonding for Small Laterals.

by Dr. Marcos Vargas

Modern composite resins offer a range of opacities that bring natural looking results for patients who want less invasive dentistry. Results are rewarding for both the patient and the dentist.

Learn some key hints and tips for everyday conservative aesthetic dentistry from Dr Vargas who shares his approach to accessible conservative options for a busy dental practice.

Case description

A 22y old female presented with the concern of small laterals, desiring to have them augmented for a "better smile". She expressed that a previous dentist wanted to "cut her teeth for crowns" but she refused it because she wanted a more conservative option (Figs. 1 and 2).

Advantages and disadvantages of whitening her teeth, crowns, porcelain veneers and conservative buildups with direct resin composite were discussed with her. Patient opted for direct resin bonded restorations. Impressions and photographs were made at this appointment. A wax-up of the proposed build-ups was formulated and a silicone matrix prepared for the build-up appointment. The patient was not interested in whitening.



Figure 1: Pre-operative smile.



Figure 2: Closer view of small laterals.

Build-up procedures

In the second appointment the patient was anaesthetised, the shade selected and rubber dam isolation was applied. Shade A2 was selected from the middle of the small laterals. Careful examination of the adjacent teeth reveals a gradient of colour from the cervical to the incisal edge. This appearance can be replicated by layering the resin composite with enamel and dentine masses in three increments; 1) a lingual enamel-like material layer, 2) a layer of dentine-like material core 3) and facial enamel-like material layer (Fig. 3).

After isolation the matrix was tried-in and placed to evaluate proper seating (Fig. 4). The adjacent teeth were protected with metal strips and 37% phosphoric acid was used to etch the enamel of both laterals simultaneously (Fig. 5). A copious amount of water was used to rinse the etchant, the teeth were dried and a coat of Scotchbond[™] Universal (3M) was applied, dried and light polymerised for 10 sec (Fig. 6).





Figure 4: Matrix try-in.



Figure 5: Protecting adjacent teeth and etching.



Figure 6: Scotchbond Universal application.

Figure 3: Layering schematics.



Figure 7: Filtek Supreme XTE A1E for palatal enamel.

The matrix was used to help with the first lingual increment of enamel. The enamel-like material, 3M[™] Filtek[™] Supreme XTE A1E, was applied and spread onto the matrix in a 0.3-0.4 mm thickness. It was then carried to the mouth, positioned, the composite adapted to the palatal surface of the teeth and polymerised from the facial and the palatal for 10 sec each (Fig 7).

The dentine was then replaced with a dentine-like material, Filtek Supreme XTE A2D, which is placed onto the facial aspects of the laterals. This increment should block the transition line between tooth and restoration as well as the black of the mouth. It is important to make sure there is room for the final single increment of an enamel-like material, which should be of approximately 0.5 mm. This increment can be molded to simulate the shape of the dentine lobes (Figs. 8 and 9).

Celluloid strips are placed interproximally prior to the application of the final facial enamel layer, Filtek Supreme A1E. The composite is spread evenly over the



Figure 9: Explorer used to form dentin shape.

facial using composite instruments and brushes (Figs. 10 and 11). The composite is then pushed with the brush towards the celluloid strip which is then pulled palataly to carry the material to close the embrasures and create proximal contacts. The increment is then polymerised for 20 sec. (Fig. 12).



Figure 10: Celluloid strips and application of Filtek Supreme XTE A1E.



Figure 8: Filtek Supreme A2D for dentine replacement.



Figure 11: Contouring enamel increment.



Figure 12: Light curing using 3M[™] Elipar[™] DeepCure for 10 sec.



Figure 14: Fine diamonds and Sof-Lex discs used to provide primary anatomy.

Contouring and polishing procedures.

A blue pencil is used to draw the desired position of anatomical features, the red pencil is used to draw the existent position of the features like transitional line angles (Fig. 13). Using fine diamonds and Sof-Lex[™] discs from 3M, the proper anatomy is replicated, matching both laterals (Fig. 14). Final polishing is achieved using Sof-Lex spirals (Fig. 15). Post operative instructions were given to the patient.

The patient returned at recall 6 months later, the restorations were fully integrated with the smile and the patient was very happy with the final result (Fig. 16).



Figure 15: Final luster obtained using Sof-Lex Spirals.



Figure 13: Red and blue pencil to draw desired primary anatomy.



Figure 16: Complete integration of restorations into smile.



Dr Marcos Vargas

Dr. Marcos Vargas attended Cayetano Heredia University School of Dentistry in Lima, Peru and graduated in 1985. He spent two years, 1990 to 1992, in the AEGD program at the Eastman Dental Center in Rochester, New York.

Dr. Vargas received his Certificate and Master Degree in Operative Dentistry in 1994 at the University of Iowa where he is currently a Professor in the Department of Family Dentistry. His primary research interests are in the area of dental materials including glass ionomers, dentin bonding, composite resins and aesthetic dentistry.

Dr. Vargas is also recognised for his expertise of Direct Restorative Treatment Procedures and conducts numerous lecture and hands-on seminars in the US and internationally. Dr. Marcos Vargas has published extensively in the area of dental adhesion and resin composites for over 20 years. He maintains a private practice limited to Restorative Dentistry with an emphasis on aesthetic dentistry.

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