

Diastema closure using the 3M Esthetic Restorative Solution: Time-tested materials with a modern spin on polishing

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Given my primary research interest in the area of dental materials—bonding, composite resins and esthetic dentistry—I'm always examining products with an eye toward simple techniques and patient-pleasing esthetic results. Recently, I was greatly impressed to discover a high-gloss finishing and polishing system that is effective for both anterior and posterior, direct and indirect restorations. The Sof-Lex™ Diamond Polishing System from 3M introduces a two-step approach that achieves a paste-like gloss with the convenience of a rubberized system. The flexible shape adapts to all tooth surfaces, producing a lifelike, high-gloss finish for the dental restoration.

Used with Filtek™ Z350 XT Universal Restorative (3M), the polishing system delivered excellent results while maintaining the integrity and anatomy of the restoration. When a young patient presented with a small anterior diastema, I used Filtek Z350 XT restorative to close the diastema, then completed the case using the Sof-Lex diamond polishing system, delivering beautiful esthetic results with a high-gloss shine that greatly impressed the patient.

As a complete system, the Esthetic Restorative Solution from 3M combines the time-tested Filtek Z350 XT restorative with the new Sof-Lex diamond polishing system to impart a very natural-looking gloss in a technique that is kinder to gingival tissues when compared with conventional discs. It brings together the diamond paste-like polish in the convenience of a rubberized system, which I can appreciate in my practice.

Case Presentation

A young female patient presented, after orthodontic treatment, with a small anterior diastema, mesial to the right lateral incisor (Fig. 1). The patient's main esthetic concern was to eliminate the space and increase the size of the lateral incisor. Additionally, to ensure optimal stability of the orthodontic treatment, proximal contact among all anterior teeth is desirable.

Pre-operative



Figure 1
The patient presented with a small anterior diastema. (Fig 1.)

Step 1



Figure 2
Isolation with a rubber dam pushed the gingiva apically to provide accessibility to the cervical area and allowed me to create proper anatomical contour and emergence profile (Fig. 2).

Step 2



Figure 3

A mylar strip was used to protect the adjacent tooth from etching (Fig. 3). The mesial proximal, facial and lingual areas were etched. I prefer to use a selective-etch enamel technique with Single Bond Universal Adhesive from 3M to increase the bond strength.

Step 3



Figure 4

To prevent contact of the adhesive with the adjacent tooth, another mylar strip was placed and adhesive was applied. The manufacturer's instructions for use states that you should rub in for 20 seconds, use a gentle stream of air for about 5 seconds, and light cure 10 seconds. My preference is to rub for 30 seconds, dry for 30 seconds and light cure for 10 seconds. (Fig. 4).

Step 4



Figure 5

Filtek™ Z350 XT Universal Restorative shade XWE was placed in two increments and each increment light cured for 20 seconds. The first increment was placed over the facial aspect of tooth #7 (Fig. 5).



Figure 6

This increment was then spread and feathered towards the middle of the tooth to improve blending (Fig. 6). After this, I started contouring and polishing. The second increment was placed to fill the palatal aspect of the diastema with the help of a mylar strip. This completely closed the diastema.

Step 5



Figure 7

To begin the contouring and polishing process, the proper length was first established with a Sof-Lex™ XT Contouring Disc (3M). Second, an incisal-facial line angle was formed. Third, the mesio-facial line angle, as well as the incisal, facial and palatal embrasures were defined (Fig. 7). Once contoured, the surface characterization of the adjacent teeth was copied onto the restoration using a fine diamond. In my experience, a speed of about 5,000 RPM using the diamond is ideal to create microanatomy.

Step 6



Figure 8

Next, I utilized the Sof-Lex™ Diamond Polishing System, which consisted of two steps. First, a beige pre-polishing spiral (Fig. 8) smoothed and removed scratches in the restoration to prepare the surface for high-gloss polishing.



Figure 9

Second, a pink diamond polishing spiral then imparted a smooth, high-gloss polish (Fig. 9). These spirals easily adapted to all surfaces. Finally, the proximal surface was polished with finishing strips.

Step 7



Figure 10

Upon finishing the restoration, the patient was very satisfied by the ideal contour, surface smoothness and life-like luster (Fig. 10).

Post-operative Restoration



Figure 11

The patient returned one week later for a final post-operative appointment (Fig. 11). She was still very satisfied with the final restoration.



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 esthetic dentistry. Dr. Vargas is also recognized 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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