A step-by-step guide to a direct diastema closure

Case Report

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A 28-year-old female patient had the primary complaint of spacing in the upper front tooth region. The patient’s medical history did not reveal any systemic diseases and an intraoral examination revealed presence of midline spacing between maxillary central incisors (~2mm) (Figs. 1 and 2).

For a more conservative, economical, aesthetic, and quicker option, a direct diastema closure was considered.

All maxillary incisors were isolated with a rubber dam (Fig. 3) to ensure complete control of moisture to keep the area clean and dry whilst also suppressing the papilla to reduce the black triangle postoperatively.

The enamel surface was minimally prepared with a diamond fissure bur to increase the surface area for bonding and to remove aprismatic black triangle postoperatively.

37% phosphoric acid was applied for 15 seconds on the mesial surface to be rinsed, then dried for 20 seconds (Fig. 4), and dried with air gently (Fig. 6). Then a universal adhesive system was used (Prime&Bond universal™), using a macro brush with a light scrubbing motion for 15 seconds (Fig. 7).

This was then gently air dried for approximately 5 seconds. Blow to margin, or to thin if necessary, using a light application of air and then light cured for 20 seconds.

The key for papilla regeneration is to provide aggressive cervical curvature that starts subgingivally and can be done with a mylar strip placed subgingivally with a high viscosity flowable composite or bulk flow composite injected to the contact point area as reference (emergence profile) (Fig. 8).

The key to success in diastema cases is to finish the first tooth completely before starting the second tooth (Fig. 9). Then some corrections can be made to the size of the first tooth so the final size of the centrals will be the same at the end of treatment (Fig. 10). In this case the proximal wall was completed with a single shade universal composite (ceram.x® SphereTEC™ one universal) and then began the emergence profile to complete the proximal wall of the second tooth (Fig. 11).

The teeth were then finished with polishing discs and rubber points. The rubber dam was then removed and as you can see there is a small black triangle in the cervical area (Fig. 12).

The recall visits in diastema cases are very important to see patient satisfaction, to check the periodontal health and to do some polishing and texture (Figs. 13 and 14). With time, the interdental papilla filled the space of the black triangle completely (Figs. 15 and 16).

"One of the main challenges clinicians face during anterior diastema closure is preventing or eliminating a black triangle between the teeth."

Fig. 1: Preoperative extraoral view of the patient
Fig. 2: Preoperative intraoral view of the patient and the midline diastema
Fig. 3: Maxillary anterior teeth were isolated with a rubber dam
Fig. 4: Teeth preparation

Fig. 5: Etching
Fig. 6: Dried enamel surface

Fig. 7: Application of Prime&Bond universal™

Fig. 8: Emergence profile of the 1st tooth
Fig. 9: 1st tooth completed

Fig. 10: Correction to the size of the 1st tooth
Fig. 11: Emergence profile of 2nd tooth

Fig. 12: Result immediately after removing the rubber dam
Fig. 13: After 4 days

Fig. 14: Control image after one month
Fig. 15: Interdental papilla before direct diastema closure

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