**CASE REPORT**

**AESTHETIC AND ECONOMICAL APPROACH TO DIASTEMA CLOSURE: A CASE REPORT**

Gautam Pyarelal Badole, Rajesh Kubde, Mohit Gunwal, Shital G Badole

**ABSTRACT**

Dental diastema is one of the common reasons for poor esthetics. Diastema closure with minimal tooth preparation and composite resin restoration is the least invasive, economical and aesthetic treatment which can be completed in a single visit in comparison to all the other available treatment options. This paper reports the management of diastema closure in anterior teeth using direct adhesive restorations.

Keywords: Acid etching; Conservative management; Diastema; Nanohybrid composite

**Introduction**

Tooth diastemas are gaps or spaces between two adjacent teeth in the same tooth arch i.e., spacing greater than 0.5 mm between the proximal surfaces of adjacent teeth. It is important to differentiate diastema from pathologic tooth migration that have developed over time and may indicate a lack of stability in tooth position. If the diastema results from tooth malposition, orthodontic treatment can avoid the need for a restorative approach. When there is presence of gingival frenum hypertrophy, surgical procedure is required. Traditionally diastema has been treated by surgical, periodontal, orthodontic or prostodontic procedures. With the advent of acid etch technique, composite resin restoration became an alternative for the diastema closure. Handling composite freehand requires skilful practice and may be considered as a disadvantage to some operators. This paper reports the management of diastema closure in anterior teeth using direct adhesive restorations.

**Case Report**

A 21 year old female reported to Department of Conservative Dentistry and Endodontics with a chief complaint of poor esthetics due to the presence of gap in her upper anterior teeth. Clinical examination revealed slight protrusion of incisors and diastema of 0.5mm-1mm between bilateral maxillary central and lateral incisors (Figure 1-3). Medical and dental history were non-contributory and preoperative radiographs and photographs were taken. Various treatment options were discussed with the patient. Patient decided to go for composite buildup and consent was taken. Oral prophylaxis was done and teeth prepared using pumice and water, and dentin and enamel shades were selected. Tooth shade obtained by comparing the center middle-third of the tooth against the middle of the shade tab. Incisors were of equal size, symmetrical additions was done by using half of the total measurement of the diastema. Cotton rolls, instead of rubber dam were recommended for isolation because of importance of relating the contour of the restoration directly to the proximal surfaces. Retraction cord was inserted into the gingival crevice to prevent contamination from Gingival Crevicular Fluid. Mesial proximal surfaces of central and lateral incisors were roughed from facial line angle to lingual line angle with a flat end taper fissure diamond bur. 37% phosphoric acid gel was applied on the prepared surface and 0.5mm beyond the cavosurface margins on to the unprepared tooth surface. After 15 second etchant was removed with water and air dried to achieve frosty matt appearance. Bonding agent was applied with applicator and cured with LED light curing system for 20 second. The celluloid strip was held on the lingual aspect of tooth to be restored with index finger and nanofilled composite material was inserted with Teflon coated hand instruments to ensure the contour with lingual surface. The celluloid strip was then gently closed facially beginning with the gingival aspect care should be taken that the strip should not pull tightly, to prevent under contouring of restoration. Restoration was cured from lingual and labial side for 30 seconds with LED light curing system. After completion of polymerization celluloid strip was removed. Contouring and finishing were achieved with appropriate flame shaped carbide finishing burs or abrasive finishing strips and discs. Retraction cord was removed and inspected for any gingival overhangs. Final polishing was differed until completion of the contra lateral restoration. Final polishing with Sof-Lex burs and discs from larger to smaller grain was done to obtain a satin-like finish on facial composite surfaces. Proximal polishing was achieved by sequentially using polishing strips (Figure 4-6).

**Discussion**

With aesthetically compromised smile, patient experiences low self-esteem. In this case patient had lack of time and not interested to go for invasive treatment like porcelain laminates and crown, so composite restoration was decided. Different authors reported satisfactory aesthetic outcomes of composite resins in anterior teeth ike, in fractures or in closure of diastemas. There are several advantages of direct composite restoration when compared with indirect restoration. If the bond between restoration and tooth fails and restoration fractures, tooth can be re-restored with another shade of composite without damaging the tooth structure. Cost and time of the treatment is very less compared to other treatment options as it can be done in single visit. The restorative material used in this present case has nanoparticles. The materials with this type of particles provide a smoother surface and therefore also favour the outcome after polishing and brushing procedures. Nanoparticulated composite resins tend to show less brightness loss and smaller increasing of the superficial rugosity as time goes by. Additionally, these composites have smaller solubility values, which can favour the longevity of restoration. The finishing and polishing procedures of the restored surface depend on the system used, as well as on the type of the restorative material employed.
Figure 1-3. Preoperative front view and side views, Figure 4-6. Postoperative front view and side views

Conclusion

In conclusion, direct composite resin restorative method for diastema closure is the least invasive, reversible, economic and aesthetic treatment which can be done in a single visit in comparison with all other available treatment options.

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