

Multiple Diastema Closure using the Putty Index Technique - A Case Report

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Abstract: *In today's world, people seeking dental treatments have aesthetics as the major concern. Diastemas are one of the most common forms of malocclusion seen frequently in the midst of the maxillary central incisors. Along with midline diastema, there can be generalized spacing in anterior teeth, especially in the maxillary arch. Correction of multiple diastema without much preparation of the teeth is one of the challenges in clinical esthetic dentistry. Indirect restorative procedures render excellent esthetics; however, these are invasive procedures that lead to the removal of unnecessary tooth structure in order to achieve the desired result. Whenever possible, the most conservative approach is preferred over the invasive procedures. This article presents a case report of esthetic management of maxillary anterior spacing including midline diastema with single - shaded composite resin utilizing direct technique along with the putty index method and supplementary lab procedures.*

Keywords: Diastema, multiple spacing, putty index technique, single - shaded composite

1. Introduction

Diastema is described as space more than 0.5 mm between the teeth. It is the most usual forms of incomplete occlusion present usually between the maxillary incisors than the mandibular incisors. It's a dark space between adjacent teeth that are separated from each other, with no presence of a contact area. Causes for this defect may be an extremely wide dental arch, congenital tooth absence, anomalous tooth size, and labial frenum hypertrophy.¹ There are various treatment options for esthetic management of dental spaces which include veneers and crowns, but they are invasive and non - economical. Hence, a treatment option is sought which is both noninvasive and economical using composite resins. Recent advances in direct composite resins give the dental practitioner an advantage to perform direct bonding procedures with minimal invasive procedures on the tooth. This conservative procedure is a chairside procedure which is less time - consuming.² The use of a silicone putty palatal index helps the clinician overcome these challenges in anterior composite build up. It is an imprint of the wax - up through which required information is transferred into the mouth during treatment.³ Advantages with putty index matrix are that exact palatal contour and form can be obtained, even in large defects and can also be used to restore another defect at the same time.⁴⁻⁵ The following case report describes the aesthetic restoration of anterior teeth using the putty index technique.

examination, diastema was found in her maxillary anterior region involving the canine in the right quadrant to the canine in the left quadrant. She was explained all the treatment options and it was her desire to close the spaces, using the direct restorative technique.



Pre - operative photograph (labial view)



Pre - operative photograph (right lateral view)

2. Case Report

A 30 year- old female patient reported to the Department of Conservative Dentistry and Endodontics, Government Dental College and Hospital Aurangabad, with the chief complaint of multiple spacing in the upper anterior teeth and desired to get them restored for aesthetic purposes. On clinical

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Pre - operative photograph (left lateral view)



Figure 6: Palatal putty index

In the first appointment, after tray selection, preliminary impressions of the maxillary and mandibular teeth were made using dental alginate, following which diagnostic casts were obtained. A diagnostic wax up done on the maxillary cast using modeling wax (Figures 4 and 5) and a palatal putty index of the concerned region was created (Figure 6), and any excess material was trimmed using a scalpel. This will later serve as a reference guide and a rigid template to reconstruct the palatal surface of the concerned teeth.

In the next appointment, the putty index was checked intraorally for fit. (Figure 7). After appropriate proper isolation, standard etching and bonding protocols were followed (Figures 8) The putty index was re - seated in the mouth and re - checked for proper placement. The index was removed and composite material (Omnichroma: single - shaded composite resin) was placed in the palatal portion on the index in a thin layer after which it was again placed into the patient's mouth and cured for 30 seconds. The putty index was then carefully removed, leaving behind a rigid layer of composite bonded to the tooth which served as a palatal reference guide.



Figure 4: Diagnostic wax - up of maxillary cast (palatal view)



Figure 7: Putty index seated in the mouth



Figure 5: Diagnostic wax - up of maxillary cast (labial view)



Figure 8: Etching with 37% phosphoric acid



Figure 9: Application of bonding agent



Figure 10: Omnichroma: single shaded composite resin



Figure 11: Final restoration after finishing & polishing

Finishing and polishing were done using the composite polishing kit (Shofu Inc, Kyoto Japan) to achieve esthetically pleasing diastema closure. (Figure 11)



Figure 12: Pre - operative photograph



Figure 13: Post - operative photograph

3. Discussion

Direct anterior composite restorative procedures have gained a lot of popularity in the recent years due to their advantages such as immediate aesthetics, minimal invasion, cost effectiveness, adhesion to tooth structure and as a chair side treatment modality.⁵ The putty index technique used in this case facilitates the reconstruction of the tooth structure by acting as guide that enables the dentists to plan the procedure in detail as the shape, size and inclination of the teeth are predetermined, that reduces the need for further adjustment.⁶ Besides acting as a index, it also serves as a rigid plate that acts like a template to hold the restorative material, determination of incisal edge thickness and cervico - incisal length of teeth allows easy insertion in the portion that needs to be restored.⁵ The use of a single - shaded composite resin (omnichroma) eliminated the hassle of shade - selection and reduced considerable chair - side time. The patient was highly satisfied after seeing the esthetic result. She was instructed to floss before tooth brushing regularly and to avoid pigmented liquids that may cause staining of restoration. The patient was asked for regular follow - up visits within 6 months.

4. Conclusion

The minimal invasive cosmetic approach adopted in this case satisfied the patient's demands. The clinical results achieved in this case report shows that palatal putty fabrication for composite restoration can be a reliable method for direct composite veneering.

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