

CASE REPORT**CLOSURE OF MIDLINE DIASTEMA BY DIRECT COMPOSITE RESIN BUILD-UP USING PUTTY INDEX- A CASE REPORT**

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ABSTRACT

Maxillary anterior spacing is a common aesthetic complaint of patients coming to dental clinic. Various treatment modalities are available for diastema closure. However, not all diastemas can be treated the same in terms of modality or timing. While excellent aesthetics are possible with indirect restorations, there may be unnecessary tooth structure removed in order to achieve the desired results. Many innovative therapies have been used, varying from restorative procedures to surgery (frenectomies) and orthodontics for closure of diastema. When a larger space closure is needed, orthodontics may be indicated to allow for a more aesthetic outcome. When a small diastema with teeth in proper orthodontic alignment, no preparation of the tooth structure is necessary and direct composite bonding may yield the desired result. The following case report shows a restorative protocol using smart composite resin build up using an putty index when addressing the midline diastema.

Keywords: Direct composite resin, Midline diastema, Putty index method

INTRODUCTION

The midline diastema could be space which presents between the maxillary central incisors.¹The prevalence of diastema varies greatly with age and race. The space may be a standard growth characteristic during the primary and mixed dentition and customarily is closed by the time the maxillary canines erupt.^{2,9}However, the diastema doesn't close spontaneously in some individuals causing a negative impact on the dental appearance and aesthetics.

Midline diastema is multifactorial in etiology. Some of the causes of mid line diastema are maxillary incisor proclination, labial frenum, incomplete coalescence of the interdental septum, pseudomicrodontia, presence of a mesiodens, peg-shaped lateral incisors, congenital absence of lateral incisors, pathologies (e.g., cysts in the midline region), habits such as finger sucking, tonguethrusting, and/or lip sucking, discrepancy in the dental and skeletal parameters, and also genetics^{3,10}. A protocol should then be made whether to treat the patient by means of direct restorative therapy or with multidisciplinary approach^{4,11}

The restorative closure of diastemas can be achieved by using any of the techniques like direct composite veneers, indirect composite veneers, porcelain laminate veneers, all ceramic crowns, metal ceramic crowns. However the development of composite resins with superior mechanical properties and excellent polishability allows the clinician to mimic the natural dentition and also render a longlasting restoration to the patient. Composite resins permit conservative treatment and at the same time offers quicker results^{5,12}. Composite resins can duplicate the pellucid and opalescent details of the tooth accurately^{6,13}. They are the foremost material of choice, which give a natural color to teeth undetectable to human vision when applied with correct technique^{7,14}. Another advantage of composites is that they are economical compared to ceramic materials and enables reparability^{8,15}. The use of silicone index is one of the biggest innovatory technique in dentistry for anterior composite build up. Putty index perfectly defines the sagittal dimensions, the length, and the incisal edge position of the desired final restoration, the incisal thickness, mesial and distal line angles and the labial curvature of the restoration. Hence, the practitioner can easily reproduce details without any hassels. This article depicts a case report of aesthetic management of midline diastema using composite resin utilizing putty index method.^{8,16}

CASE REPORT

A 20-year-old female patient reported to the Department of Conservative Dentistry and Endodontics of our institute with the chief complaint of spacing in upper anterior teeth. The patient's spacing was causing her social embarrassment and lowering her patient self-esteem. A minimally invasive approach with a direct composite resin restoration was planned to restore the diastema and other interdental spaces.



On examination a space of around 1.5 mm existed between the maxillary central incisors and there was spacing between the right central and lateral incisor and furthermore all the upper incisors had relatively less mesiodistal

Closure of midline diastema and overall smile build up using a direct composite build up using putty index. Informed consent was taken, and complete treatment plan was clarified to the patient. In first appointment, tray was selected, and c-silicone putty material was used to make preliminary impression and then diagnostic cast was obtained. A dental mock-up wax was used, and diagnostic wax up done on the cast and a putty index was created. (Figure 2,3) All the material that was unnecessary for the stability of matrix was removed using the scalpel. The fit of the putty index in the Mouth was examined.



Proper placement of putty index in the mouth was checked. Putty index was removed and then a thin layer of A1 shade transparent composite resin was used palatally as enamel after that its placed into patient's mouth and cured for half minute (Figure 4). A rigid thin layer of composite bonded to the tooth was formed by carefully removing putty index as shown in picture. Which serves as a reference guide for further placement of composite.



A thin layer of composite resin was placed roughly as second layer. composite resin was used as dentin layer and a thin layer A1 shade was used as the top enamel layer (Figure 5[A, B]) Labial surfaces of the restorations were flattened by using a red banded knife-edge tip diamond bur (Acurata, Germany) Polishing discs (Ultra Gloss Composite Polishing System, Axis, USA) were used for detailed polishing from rough to fine grains by using a low speed handpiece (DURAtec 2068D, Germany). The patient was motivated for oral hygiene..

DISCUSSION

Resin-based composite restorations are single-visit procedures and bypass laboratory work which reduces cost of the treatment. . In addition to this, some added advantages of resin restorations over other common treatment modalities are that (a) they are gentle towards the opposing dentition, unlike ceramic materials and (b) they are easy to repair in case of fracture. In this case the predictability of the direct technique was enhanced by producing a lingual incisal silicone index. Also the creation of a stratified restoration in the mouth with the same form as a previous wax-up is possible with the putty index. This technique is easy to perform, with creation of correct midline and optimal contact area but requires experience and skill.

CONCLUSION

The clinical outcome of this case report demonstrates that palatal putty replicating for composite restoration can be a reliable procedure for direct composite veneering. In these cases, the minimally invasive cosmetic method met the patient's aesthetic objectives. The natural tooth structure was attempted to be duplicated as closely as feasible.

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