

# Management of Maxillary Midline Diastema following Post-orthodontic Treatment Relapse

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## ABSTRACT

Maxillary midline diastema is a common esthetic complaint of patients. It can be one of the most negative factors in highly self-conscious patients. Midline diastema can be defined as a space greater than 0.5 mm between the proximal surfaces of the two central incisors. These can be either corrected orthodontically or can be prosthetically restored. Treatment is mainly for esthetic and psychological reasons, rather than functional ones. The restoration of anterior teeth with diastema usually presents an aesthetic and functional challenge after the patient has undergone the pains of orthodontic treatment relapse. Such defects were usually treated by composite veneers, porcelain veneers or full crown coverage. Many a times teeth that could have been saved with the use of a conservative laminate veneer are destroyed by full crown reduction. When properly executed, porcelain veneers for cosmetic dentistry are the best option.

**KEYWORDS:** Esthetics, Laminate veneer, Midline Diastema, Orthodontic Relapse

## INTRODUCTION

Recently, people are giving an increasing importance to a healthy and attractive smile. Several options are available to treat problems arising in the zone of high esthetic sensitivity. The porcelain laminate veneers have been shown to be a useful management option, especially in the anterior esthetic zone to correct esthetic and functional problems. The presence of diastema between teeth is a common feature found in anterior teeth. These diastemas usually hamper the pleasing smile of a patient which can be successfully closed with porcelain laminate veneers.<sup>1</sup>

It has been considered to be an alternative to full coverage crowns or direct composite veneers for optimal esthetics.<sup>2,3,4</sup> Porcelain laminate veneers have also been applied to compensate for the limitations of orthodontic treatment. Orthodontic therapy was usually considered to be the most conservative approach for correcting mild to severe malocclusion, but due to potential relapse of orthodontic treatment restorative means was opted by many clinicians. The diastema spaces which followed after orthodontic treatment have been restored with porcelain veneers so effectively that no relapse has been observed. This article reports a case of midline diastema after post-orthodontic treatment relapse in maxillary arch and retention plate in mandibular arch which was conservatively managed with porcelain ceramic veneers, achieving the desired esthetic results.

## CASE REPORT

A 33 year old young male patient reported to the department of prosthodontics complaining about the unaesthetic appearance due to diastema in the maxillary

anterior region (Fig 1). The patient underwent orthodontic treatment one and half year back for the malalignment and spacings in the teeth. After the orthodontic treatment, there was relapse in the upper anterior teeth leading again to diastema in the midline of 1.5 mm and 0.5 mm spacing in between upper central incisor and lateral incisor. The patient was wearing the retention plate in the lower arch after the orthodontic treatment. The patient's demand was to close the diastema between maxillary anterior teeth in the midline. There was stable molar occlusion on both sides and incisal guidance was shallow. The patient was given the treatment plan and procedure for the conservative closure of midline diastema with the Porcelain Laminate Veneer.



Fig 1: Preoperative intraoral photographs showing maxillary midline diastema after post-orthodontic treatment relapse and mandibular retention plate.

**Procedure:** The diagnostic impressions, face bow record, centric bite were made in the first appointment (Fig 2). The wax up was done on the 11,21 and 12,22 (Fig 3).

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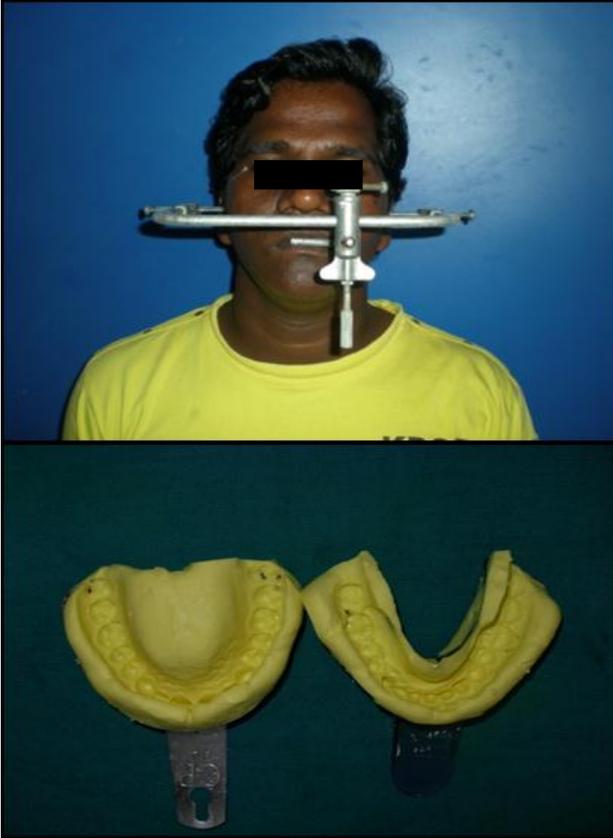


Fig 2: Face bow record and Diagnostic Impressions



Fig 3: Diagnostic Wax up with 11,12,21,22.

Silicon putty index was prepared on the cast and tried in the patient's mouth for the fit and clearance. Further preparation for ceramic laminate veneers was done stepwise by conventional technique. Gingival displacement was done with braided retraction cord using retraction medicament (Aluminium chloride, "Viscostat Clear 25%").<sup>5</sup> Impressions were made in Addition Silicone (Aquadil "Densply") (Fig 4 and Fig 5). Shade was selected with optimum care. Impressions, studymodels with diagnostic wax up and silicone index all were sent to laboratory. Temporary composite veneer was made according to the diagnostic wax up and was verified for shape, size, smile line, margin fit, occlusal interferences. Finally, then the Porcelain laminate veneers (IPS E-max), after necessary correction, were sent to laboratory for final finishing and glazing which were then

bonded to the prepared teeth with self adhesive resin cement (Multilink "Ivoclar"). (Fig 6 and 7)



Fig 4: Tooth preparation done with 11,12,21,22 for Laminte veneer



Fig 5: Final impression



Fig 6: Porcelain Laminte Veneers (IPS-Emax) cemented with 11,12,21,22 ( Labial view)



Fig 7: Porcelain Laminte Veneers (IPS-Emax) cemented with 11,12,21,22 (Palatal view)

## DISCUSSION

Orthodontics treatment is a conservative method for the mild spacing, malocclusions to improve the dental appearance and smile. Orthodontic treatment, at times may not be accepted by the patient due to lengthy treatment, the appearance during treatment and psychological factors. The chances of relapse after orthodontic treatment have inspired the clinicians to use restorative means to treat both an aesthetic and functional problems.<sup>6</sup> Ceramic veneers are one of the most conservative and aesthetic procedure that can be done when restoring the arch for improved appearance.<sup>7</sup> Esthetics is adversely affected by diastema and it has to be treated without compromising the esthetics and function of a patient. The estimated survival probability of porcelain laminate veneers over a period of 10 years is 91%.<sup>8-9</sup> In this case, the choice of diastema closure was done using Porcelain Laminate Veneers, because the patients had difficulty in social interaction due to poor appearance. The patient earlier underwent orthodontic relapse of maxillary anterior teeth, so he demanded treatment to be done early. The recovery of function and esthetic of a patient with maxillary diastemas with Porcelain Laminate Veneers allowed excellent results with conservative preparations. Correct diagnosis and treatment planning, correct selection of dental materials, and quality communication with the prosthetic technician contributed to a harmonious smile and satisfaction of both patient and clinician.

## CONCLUSION

Conservative approach has to be selected by the clinician to treat the diastema cases, which often lies in giving laminate veneers, rather than fully preparing the teeth for

crowns. When properly planned and implemented, porcelain laminate veneers may be the best option to improve esthetics.

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