



Correction of Midline Diastema by Laminate Veneer –A Case Report

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ABSTRACT:

Laminate veneer is one of the most aesthetic conservative techniques while rehabilitating the human dentition. However, their longevity mostly depends upon the application of the correct techniques. Generally, the chance of their success is 94% to 95% in long term retrospective studies (15 -20years). The preparation of tooth plays a pivotal role in this technique. The bonding with enamel rather than dentin provides the strongest bond. The proper treatment planning and case selection along with, proper ceramics selection and methods of cementation, proper finishing and polishing and proper maintenance of these restorations are some important aspects of the success of these restorations. This article depicts a case of midline diastema which was corrected esthetically as well as conservatively using laminate veneers.

1. Introduction

One of the most aesthetic and conservative techniques while restoring the human dentition is laminate veneer., Proper case selection and correct techniques application has been their key to success since their development 25 years ago ^[1]. Their success rates of veneers are as high as 94% to 95% percent according to their long term (15- and 20-year) retrospective studies ^[2,3]. The preparation of tooth is one of the most important key factors of these cases. Bonding to enamel rather than dentin plays a pivotal role ^[4-6]. Chances of debonding and, micro leakage of these restorations are minimum when they are bordered on all margins by enamel. Making the preparation simple and conservative is the main key of the success of this kind of restoration.

Case report-

A young lady of 30 years age attended the Department of Prosthodontics for correction of her midline diastema in between 11 and 21(Pic 1). She wanted immediate result and did not want to go for orthodontic intervention.

Laminate veneer preparation over two adjacent teeth was planned because it is a conservative alternative to full coverage for improving the appearance of anterior teeth. As the preparation is minimal, limited to enamel but sufficient to provide correct contour of restoration this type of preparation was preferred. During the preparation of the tooth depth orientation grooves were given in the gingival half with three-wheel diamond depth cutter (0.3 mm) on labial surface. The Depth-orientation grooves on incisal half were prepared with three-wheel diamond depth cutter (0.5mm) labially. Then the incisal wrap preparation was done for several reasons as it can be used in most patients, easily fabricated by the technician and easily handled by the dentist due to positive seating on delivery. For doing this depth cuts of 0.5 mm were prepared in the incisal surface of tooth. The incisal surface was reduced in a manner similar to incisal butt-joint preparation. The lingual finish line was reduced with the round-end tapered diamond. The instrument was held parallel to the lingual



surface, with its end forming a light chamfer 0.5 mm deep for lingual tooth preparation. The finish line was prepared approximately one-fourth the way down the lingual surface, 1 mm from centric contacts, and connecting the two proximal finish line (Pic 2). Round-end tapered diamond was used to remove the sharp features that may have formed where the facial, proximal, and lingual planes of reduction meet. All sharp angles were rounded off in the completed preparation. After two adjacent teeth preparation, impression (Pic 3) was taken with light body and putty polyvinyl siloxane material and model were poured using die stone material. Then model was sent to laboratory for fabrication of laminate (Pic 4). During the cementation laminate surface and teeth surface both are prepared. During the laminate surface preparation laminates were arranged on a wax sheet denoting the position of the tooth in the arch to avoid incorrect placement and inadvertent breakage. Laminates were then etched with 4% hydrofluoric acid (Fig 5). After etching, they were washed thoroughly using liberal amount of water. On drying, a coat of Silane coupling agent was applied on fitting surface (Fig 6). During the teeth preparation first, all residue were removed. Then teeth were etched using 37% Phosphoric acid for 15 seconds and air dried. Then bonding agent (Fig 7) was applied and light cured for 10 seconds (Fig 8). Dual cure composite crown and bridge luting agent was used for cementation procedure. Then with slight pressure veneer was positioned onto the preparation, gradually to allow the excess material to escape and to avoid the formation of air bubbles and lifting of veneer itself. The laminates were then spot cured for 5 seconds initially. Excess cement was removed with explorer and then complete curing was done for 20 seconds (Fig 9, 10).



Fig 1: Pre op photograph of midline diastema



Fig 2: Prepared teeth surface for laminate veneer



Fig 3: Final impression



Fig 4: Fabrication of laminate veneer in dental laboratory



Fig 5: Acid etching



Fig 6: Application of silane coupling agent



Fig 7: Application of luting agent



Fig 8: Application of light cure machine



Fig 9: Intra oral view of prosthesis in patient's mouth



Fig 10: post op views following veneering

Conclusions: Porcelain laminate veneers is not only one of the most commonly used aesthetic restorations but also this approach is one of the most conservative treatment options, to maintain proper aesthetics excellent communication among the dentist, patient, and ceramist must be followed. The case selection and treatment planning also play a pivotal role. To get best aesthetics, phonetics and functional outcome the use of mock-ups, followed by a wax mock-up and silicone index also plays very crucial role for communication with patients as well as laboratory. It also allows for minimal preparation on the recipient tooth making the tooth preparation very conservative.

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