

Aesthetic Correction and Replacement of Missing Tooth in Maxillary Aesthetic Zone Using Modified FPD with Loop Connectors -a Case Report

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Abstract A case of patient with missing tooth in the upper anterior region of the jaw reported to our institution with generalized spacing. The use of conventional FPD may result in too wide anterior teeth leading to poor esthetics. Hence modified FPD with loop connectors provide natural appearance of the restoration and also preserve the remaining tooth structure of abutment teeth. This clinical report deals with the treatment using modified FPD with loop connectors to retain the diastemas while replacing the missing teeth in the maxillary aesthetic zone.

Keywords: loop, diastema, connector, spacing, fixed partial denture, aesthetic

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1. Introduction

The need for replacing missing teeth is obvious to the patient when the edentulous space is in the anterior segment of the mouth, but it is equally important in the posterior region [1]. Nearly 80% of the young subjects in the study by Tjan et al displayed the entire length of the maxillary anterior teeth. Women show nearly twice as much maxillary central incisor as men (3.4 to 1.9 mm, respectively) with the upper lip at rest and men are 2.4 times more likely to have a low smile line than women [2]. So to contribute to a pleasing facial appearance particularly when patient smiles, contours, size, incisal edge, occlusal plane and midline must be in harmony while replacing teeth in the appearance zone [3]. This clinical report deals with the treatment of using modified FPD with palatal loop connectors to restore the missing central incisor for a patient with generalized diastema.

2. Case Report

A 25 year old lady reported with the complaint of missing tooth in the upper anterior region of the jaw due to trauma. Her past dental history revealed that tooth preparation was done in 12 and 21 but crowns were not been delivered for past 3 years. On clinical examination she had class- I molar relation having generalized diastema and bimaxillary proclination with open bite [Figure 1]. Radiological examination revealed periapical radiolucency in 12 suggestive of chronic periapical abscess in 12 [Figure 2]. Pulp testing using electronic pulp tester and thermal tests showed negative response in 12 and 21 conforming non vitality of teeth. Since patient was

not willing to correct the proclination, we started off the treatment by doing RCT in 12, 21 and intentional RCT in 22. Tooth preparation for porcelain fused to metal was done in 12,21,22 [Figure 3]. The shoulder finish lines of the preparation were kept equigingival in order to enhance the esthetics as it prevents the colour of the metal from showing thorough translucent enamel. Final impressions were made with two stage double mix putty light body rubber base impression material (Aquasil, Denstply) [Figure 4] which was sent to the lab. Two provisional FPD's were made, one with spacing between the teeth and another with no spacing [Figure 5 & Figure 6]. Patient choose the temporary crown with spacing as it matches with rest of the teeth. Hence a FPD in relation to 11,12,21,22 with loop connectors retaining the diastema was planned. Full coverage PFM crowns with loop connectors were fabricated after metal try in [Figure 7 & Figure 8]. Try in was done and interferences were removed. After isolation restorations were cemented using Type-I Glass ionomer luting cement [Figure 9]. Proper oral hygiene instructions were given. The patient was reviewed after 2 weeks [Figure 10].



Figure 1. Pre operative photo showing generalized diastema with a open bite



Figure 2. IOPA of 11%2c12 reveals periapical radiolucency in 12



Figure 3. Tooth preparation done in 12%2c21%2c22



Figure 4. Final impression with rubber base impression material



Figure 5. Provisional FPD without spacing



Figure 6. Provisional FPD spacing



Figure 7. Full coverage PFM crowns without spacing



Figure 8. Occlusal view showing the loops



Figure 9. Cemented FPD



Figure 10. Patient reviewed after two weeks

3. Discussion

The presence of missing central incisor in the patient with diastema is a difficult esthetic problem to resolve with conventional FPD's. Maximum esthetic results is obtained if the natural anatomic forms of teeth are protected and the diastema are maintained with minimal over-contouring of the adjacent teeth [4]. The modified FPD with loop connectors enhance the natural appearance of the restoration, maintain the diastemas and the proper emergence profile and preserve the remaining tooth structure of the abutment teeth [5]. The prosthesis design may cause difficulty in maintenance and may effect in phonetics especially linguopalatal sounds. However keeping the connectors round and small in size will not affect the phonetics [5]. Photoelastic analysis has revealed that within the connector, the highest stress was found at the gingival region of the connector and the lowest in the middle of the connector [6,7]. Also connector geometry affects the strength of ceramic materials [8,9]. Therefore smoother, less angled and more round connectors should be kept for lower stress levels [10].

4. Conclusion

This clinical report discusses the treatment done for restoring missing central incisor in aesthetic zone using modified FPD with loop connectors. Good esthetics is achieved through art and symmetry of the teeth and face

which enhances the appearance as well as the function of the teeth, oral cavity, and face.

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