

## Conservative Rehabilitation of an Aesthetic Problem: Loop Connector

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### Abstract

Rehabilitation of a patient with a missing anterior tooth is a challenging task. There are various treatment options which are available to restore the edentulous span, which includes removable partial denture, fixed partial denture, resin bonded fixed partial denture and implant supported restorations. This rehabilitation procedure becomes challenging when there is presence of diastema, which increases the mesio distal space. Loop connector fixed partial denture is an ideal choice to restore this space. This treatment modality is the simplest and provides function and esthetics. This case report describes the fabrication of a loop connector cantilevered fixed partial denture to restore an excessively wide anterior edentulous span.

**Keywords:** Loop Connector, Diastema, Prosthodontic Rehabilitation, Cantilever

### Introduction

Replacing a single missing crown in the esthetic zone has always been an arduous task. Various treatment options are available for the replacement of single anterior tooth, like removable partial denture, fixed partial denture, resin bonded fixed partial denture and implant supported prosthesis<sup>(1)</sup>. Great difficulty is faced with the presence of diastema or spacing between the dentition. Replacement of this edentulous area with a fixed partial denture may result in overcontoured emergence profile resulting in poor esthetics.<sup>(2,3,4)</sup>

This clinical case report describes a conservative approach towards rehabilitation of a missing anterior tooth with a cantilevered loop connector fixed partial denture to provide esthetic and functional correction for a patient with diastema and a missing central incisor.

### Case Report

A 24 year-old female patient reported to the Department of Prosthodontics, chief complaint of replacement of missing teeth in upper left front tooth region. Her prime concern was restoring esthetics and function. On intra oral examination, missing left central incisor was observed and the available space was found to be greater than the adjacent central incisor. (Fig. 1) the options which were available for restoration were removable partial denture, resin bonded fixed partial denture and implants. On CBCT examination implant supported restoration was ruled out as the missing central incisor was embedded in nasal fossa and there was absence of adequate space cervico – apically making it impossible to place the implant. Therefore to restore the edentulous space a more conservative approach of loop connector fixed partial denture was opted with left central incisor as pontic and right central incisor as abutment maintaining the diastema between the pontic and the abutment. The patient was explained the treatment modality and the final outcome was shown to her by diagnostic wax – up and consent was taken from the patient.

### Procedure

Diagnostic impressions were made and mock-up was done on the mounted diagnostic cast. Shade selection was done before tooth preparation. Abutment teeth was prepared and lingual clearance of 0.8mm was provided. Proximal reduction of 0.8 – 1mm was done using flat end tapered diamond which was followed by the facial reduction. Supragingival margins were placed. A light body putty impression were made (Aquasil V Dentsply Intl) and cast were poured. Framework was designed on the cast and wax patterns were made and the abutment and pontic were connected by a loop made of sprue wax which was 1.5 to 2mm thick. (Fig. 2, 3) The frame work was casted and finished. During second appointment tryin of the framework was made to ensure proper fit and lack of palatal tissue impingement. After the tryin procedure ceramming was done on the pontic and on the facial aspect of the retainer. (Fig. 4)

Before final cementation of the prosthesis, the esthetic appearance was confirmed by the patient. (Fig. 5) a self-adhesive resin cement was used for the cementation of the prosthesis. The patient was instructed to follow proper hygiene procedure. (Fig. 6)



**Fig. 1: Pre-operative intra oral**



**Fig. 2: Wax pattern**



**Fig. 3: Wax pattern on mounted cast**



**Fig. 4: After Ceramming**



**Fig. 5: Intra –oral after cementation**



**Fig. 6: Esthetically restored smile**

### Discussion

Presence of excessive spacing in the midline makes esthetic replacement a great challenge to the dentist. Use of innovative techniques to achieve esthetic results in fixed partial denture treatment procedures makes loop connectors a suitable and a viable treatment option.<sup>(5)</sup> In a loop connector the loop may be cast from sprue wax either circular in cross-section or shaped from platinum-gold-palladium (Pt-Au-Pd) alloy wire. There should be adequate thickness of the connector to prevent deformation but not so much that it becomes conspicuous to the tongue. The incorporation of a loop connector in this design allowed the patient to be given an excellent esthetic outcome without compromising the functionality of the restoration. Thus, loop connectors have several advantages when it comes to the esthetic appearance.<sup>(6,7)</sup>

### Conclusion

Loop connectors are not commonly used but they provide a conservative and viable option for restoration of a missing tooth with midline diastema. Therefore when other options are ruled out fixed cantilever prosthesis provide an esthetic treatment opportunity.

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