



# Loop Connector: An Esthetic Solution For Missing Anterior Tooth With Diastema- A Case Report

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## Abstract:

Esthetically replacing an anterior tooth with excessive space is a most challenging as well as complex procedure. Patients having anterior missing tooth with diastema have various treatment options to replace the edentulous space. These are implant supported prosthesis or conventional porcelain fused metal or resin bonded fixed partial dentures. If these treatment options are not possible, loop connector provide a simple as well as the best solution for missing anterior tooth with diastema or excessive edentulous space.

This article describes the procedure for fabrication of loop connector to replace the excessive edentulous space in maxillary anterior segment to achieve ideal esthetic result.

**Keywords:** loop connector, diastema, implant supported prosthesis, edentulous space.

## INTRODUCTION:

Connectors are the parts of a fixed partial denture prosthesis that connect retainers and pontics together. It is of two types i.e. rigid and non-rigid connector.<sup>(1)</sup> Loop connector is a type of rigid connector. Loop connector is indicated in case of maintaining existing diastema in a planned fixed partial denture prosthesis.<sup>(2)</sup> Loop connectors composed of a loop that unite adjoining retainers and pontics on the lingual aspect of the fixed prosthesis. The loop should be made in such a way that it is easy to maintain.<sup>(3)</sup>

Restoring a missing tooth in anterior esthetic region becomes a challenge for Prosthodontist. There are various treatment options available for restoring a single anterior tooth i.e. implant supported prosthesis or conventional porcelain fused to metal as well as resin bonded fixed partial denture.<sup>(4)</sup>

Previously existing diastema resulting in excessive mesio-distal dimension of the pontic space which causes the clinical situation further worsened.<sup>(5)</sup> In case of wide anterior edentulous space the use of conventional fixed partial prosthesis to restore the missing anterior tooth resulting in poor esthetics. Diastema causing from the missing central incisor can be treated with loop connector.<sup>(6,7,8)</sup> If implant supported prosthesis is not indicated as a treatment option for any reason, the best and simple solution may be the loop connector fixed partial denture which provides esthetics also.<sup>(9,10)</sup>

This article report a technique to construct a three unit fixed partial denture with palatal loop connector for a patient having missing upper right central incisor with diastema to achieve proper esthetic and functional result.

**CASE REPORT:**

A 28 years-old female patient reported to the department of Prosthodontics and Crown and Bridge with the chief complaint of missing upper anterior tooth for past 6 months. On intraoral examination, it was seen that right maxillary central incisor was missing with excessive space present. (Figure 1)



Figure 1: Pre-operative frontal view

The patient gave a history of trauma followed by avulsion of the tooth over 6 months ago. Due to large edentulous space a conventional fixed partial denture was not possible to restore the missing anterior tooth. Patient was not interested for implant placement as well as a removable partial denture. He wanted a fixed prosthesis for her missing tooth. There were two options available in fixed prosthesis i.e. spring cantilever FPD or loop connectors. Spring cantilever FPD was not planned because no posterior tooth needed crown. So a loop connector FPD was planned for right central incisor as pontic and left central incisor and right lateral incisor as abutment teeth.

**Procedure:** At the first appointment, diagnostic impressions were made with irreversible hydrocolloid impression material and poured with type III dental stone. A wax mock up was done for patient understanding about treatment plan. Tooth preparation was done with respect to left central incisor and right lateral incisor. Gingival retraction was done using retraction cord and final impression was made using two stage putty wash technique with polyvinylsiloxane impression material. Impression was poured in type IV dental stone to fabricate the master cast. After preparation of the die on the cast, die ditching was done and wax pattern was fabricated on the die with inlay wax. (Figure 2)



Figure 2: Wax pattern frontal view

Palatal loops were constructed with sprue wax from pontic to left central incisor and right lateral incisor. (Figure 3)



Figure 3: Wax pattern palatal view

Then casting was done and copings were finished. Metal try-in was done in patient mouth.(Figure 4a,4b)



Figure 4a: Metal try-in palatal view



Figure 4b: Metal try-in frontal view

After checking the proper fit of the casting, ceramic build up was done. The loop connector FPD was cemented using type I glass ionomer cement after proper occlusal adjustments. (Figure 5a,5b)



Figure 5a: Post-operative palatal view



Figure 5b: Post-operative frontal view

## DISCUSSION:

Esthetic replacement of large anterior edentulous space is a great challenge for a prosthodontist because it is difficult to maintain natural anatomic forms of the teeth with minimal overcountouring of the adjoining teeth. Implant supported prosthesis, removable partial denture and fixed partial denture are the available options for replacing missing anterior teeth.<sup>(1)</sup> Where conventional FPD, implant supported prosthesis or removable partial denture are not possible loop connector FPD may be the best and simplest treatment option for restoring missing anterior tooth esthetically and functionally. It is the one of the choice to solve this problem of excessive mesiodistal width of pontic space when FPD are planned.<sup>(12)</sup>

The loop of the loop connector should be of adequate thickness to prevent deformation but not too much that it becomes remarkable for the tongue. Thus, loop connectors have several advantages and disadvantages. The advantage includes its esthetic outcomes and disadvantages includes extra laboratory procedures, difficulty in maintaining oral hygiene, interference with tongue and discomfort in speech. These disadvantages can be minimised by keeping the connectors round and small in size.<sup>(13,14)</sup>

This paper has described a conservative approach for anterior esthetic replacement with the loop connectors help to maintain the diastema with good aesthetic results.

## CONCLUSION:

Loop connectors are used as an excellent treatment option in case of large edentulous space in anterior esthetic zone. It maintained existing diastema in a planned fixed prosthesis as in the present case. This prosthesis fulfill the esthetic as well as functional requirement of the patient.

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