



## Oral Rehabilitation with Multiple Loop Connectors - A Case Report

### KEYWORDS

Diastema, Esthetic, Fixed Partial Denture, Loop connectors, Spacing

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**ABSTRACT** *Loss of anterior teeth with existing diastema may result in excess space available for pontic. This condition presents great esthetic challenge for prosthodontist. If implant supported prosthesis is not possible because of inadequate bone support, fixed partial denture along with loop connector may be the treatment option to maintain the diastema and provide optimal esthetic restoration. Here we report a clinical case where fixed partial denture along with loop connector was used to achieve esthetic rehabilitation in maxillary anterior region in which midline diastema has been maintained.*

### INTRODUCTION

Replacing a single tooth in esthetic region has been considered as a challenge for clinician. Loss of anterior tooth with existing diastema may result in excess space available for pontic. Various treatment options are available for replacement of single anterior tooth that includes an implant supported prosthesis or conventional fixed partial denture (FPD). This leaves a challenge for prosthodontist whether to close the space or to maintain the space with resoration for natural appearance. If diastema has to be maintain in restoration and implant is not as treatment option, FPD along with loop connector is the best treatment option. The modified FPD with loop connectors enhance the natural appearance of the restoration; maintain the diastema and proper emergence profile. [1] This clinical report describes a technique to fabricate a three unit porcelain fused to metal FPD with modified palatal loop connector to achieve an optimal esthetic and functional correction for patient with missing maxillary central incisor along with spacing in the maxillary anterior region.

### CASE REPORT

A 37 year old male patient reported to the department of Prosthodontics with a chief complaint of replacement of missing left maxillary central incisor [Fig-1]. On examination right maxillary central incisor and left maxillary lateral incisor were endodontically treated and esthetically compromised but had good periodontal support. The edentulous area was wide mesiodistally and there was spacing between existing anterior teeth [Fig-2].

Radiographic examination reveals the endodontically treated right maxillary central incisor and left maxillary lateral incisor. Less amount of bone available in left maxillary central incisor area.

The treatment options include an implant supported prosthesis or fixed partial denture with the aid of loop connector and resin bonded FPD. Considering his availability of bone and esthetic requirement of maintaining space between maxillary anterior teeth, the treatment option of three unit of porcelain fused to metal FPD from right maxillary central incisor to left maxillary lateral incisor with intermittent loop connector was considered.

### CLINICAL PROCEDURE

The proposed treatment plan was discussed with patient and following clinical procedure were carried out for his oral rehabilitation, teeth preparation for porcelain fused to metal prosthesis was carried out on right maxillary central incisor and left maxillary lateral incisor with equigingival margins and shoulder finish line in order to enhance the esthetics[Fig-3]. The gingival retraction were carried out with gingival retraction cord and final impressions were made using elastomeric impression material with two stage double mix technique[Fig-4]. An interocclusal record was made using bite registration material. Provisional restorations were fabricated with a tooth colored auto polymerising acrylic resin and cemented with non- eugenol temporary cement [Fig-5].

The impression was poured in type IV dental stone. Master cast were retrieved and die cutting was done. Master cast were mounted on a semiadjustable articulator using interocclusal record. Wax patterns were fabricated using blue inlay wax. Wax spacer was adapted on the palate so that adequate space will be given in the area of loop connectors for the maintenance of oral hygiene. The wax patterns were invested with phosphate bonded investment material and cast in base metal alloy. After confirming the metal try in, the ceramic build up was done.

Bisque trial was done. Loop connectors were highly polished to high shine [Fig-6]. Final fixed dental prosthesis with loop connectors was luted using glass ionomer cement [Fig-7], [Fig-8].

The patient was instructed to maintain proper oral hygiene. Use of dental floss and interdental brush were recommended. The patient was evaluated after one week to assess the oral hygiene status [Fig-9].

### DISCUSSION

Connectors are the part of FPD that connect between retainer and pontic. They may be either rigid or non-rigid. Conventional FPD connectors are more rigid as compared to loop connectors. [2] Loop connectors become more flexible and its flexibility depends upon its lengths, diameter and its cross section.

Indications for loop connector-

- Patient wishes to maintain the diastema
- Presence of excessive pontic space
- Multiple, joined prosthetic restorations in clinical situations with presence of localised or generalised spacing between abutments.
- Prosthetic restorations for pathologically migrated and periodontally weak teeth[3]

Patient with missing central incisor along with diastema have limited treatment option. Closing the space (diastema) with conventional FPD without considering golden proportion would fail to create an esthetically pleasing appearance and detrimental effects on the periodontium.[4 5] The modified FPD with loop connectors enhance the natural appearance of the restoration, maintain the diastema, proper emergence profile and preserve the remaining tooth structure of abutment teeth.[6]

Disadvantages of loop connectors includes additional laboratory procedures, difficult to maintain oral hygiene, interference in tongue movement and discomfort in speech.[5] However keeping the connectors round and small in size will not affect the phonetics.[7]

**CONCLUSION**

Treatment planning is crucial to success when considering any form of tooth replacement. Whichever treatment modality is finally selected, it should suit the needs of the patient. This clinical report describes use of loop connector for replacing missing central incisor with existing diastema. Loop connectors maintain proper emergence profile and enhance esthetic.



[Fig-1]: Extraoral view Missing left maxillary central incisor



[Fig-2]: Intraoral Missing left maxillary central incisor wide mesio-distal pontic space



[Fig-3]: Teeth preparation with right maxillary central incisor & left maxillary lateral incisor



[Fig-4]: final Impression



[Fig-5]: Temporisation



[Fig-6]: final prosthesis with loop connectors between maxillary central and lateral incisor



[Fig-7]: final prosthesis after cementation



[Fig-8]: final prosthesis in occlusion



[Fig-9]: Post operative extraoral view

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