

## Loop Connectors: An Overlooked Solution to Missing Anteriors- A Case Report

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### Abstract

The most promising solution to missing teeth in today's world seems to be Implants. Conventional fixed partial dentures and resin bonded bridges are the most commonly used alternatives. However, it is not always possible to use these solutions, especially in case of missing anteriors with excessive space. A simple yet often overlooked solution to replacing missing teeth and maintaining the diastema is use of Loop connectors.

This article presents a case with excessive space in the anterior region treated with a loop connector to achieve ideal esthetic results in the maxillary anterior segment.

**Keywords:** Anterior edentulous space, Diastema, Loop connector, Spacing.

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### Introduction

Replacement of missing anterior teeth has always been a complex, challenging procedure for Prosthodontists in order to achieve ideal esthetic and functional results that truly meet the demands of the patients. It has numerous treatment alternatives viz. implant-supported restorations as well as conventional porcelain-fused-to-metal, all ceramic and resin-bonded fixed partial dentures.

In anterior restorations, it is the exacting nature of the demands of the esthetic zone as well as the limited margin of error that makes the task daunting. The clinical situation is further worsened with a previously existing diastema or drifting of teeth into the edentulous space resulting in excessive mesiodistal dimension of the pontic space.<sup>1</sup>

Loop connector is an often neglected but highly efficient treatment alternative to replacement of missing anterior teeth with pre-existing diastema. It is a non-rigid connector and consists of a loop on the lingual aspect of the prosthesis that connects adjacent retainers and/ or pontics.<sup>2</sup>

This offers a simple solution for a situation involving an anterior edentulous space albeit with the maintenance of the diastema.<sup>1</sup> This article presents a case with excessive space in the anterior region treated with a loop connector to achieve ideal esthetic results in the maxillary anterior segment.

### Case Report

A 39 year old female reported for the replacement of left maxillary central incisor (Fig. 1). Her prime concern was esthetic replacement as well as maintenance of midline diastema as she believed that the spacing was

lucky for her financially. On examination, the available edentulous span was greater than the approximate size of the adjacent central incisor and there was spacing present between the remaining teeth as well.

Maxillary and mandibular alginate impression were made for a wax mock-up of the final restorations for patient approval. Two diagnostic wax mock-ups were made. In the first mockup, no diastema was kept between the adjacent teeth. In the second mock-up, a loop connector was utilized to make the replacement esthetic and in accordance with the overall appearance and alignment of the other teeth. The patient approved the second mock-up that was designed with a loop connector.

Patient's maxillary right central incisor and left lateral incisor were prepared in the conventional manner (Fig. 2). Impressions were made using two stage double mix putty light body rubber base impression material (Aquasil, Dentsply) and poured in Type IV dental stone (Kalrock, Kalabhai).

Master casts were retrieved and were mounted on semi-adjustable articulator using a face-bow transfer and interocclusal record. The provisional FPD was fabricated and cemented using non-eugenol cement (Fig. 3).

Wax pattern with a loop connector was designed on the casts (Fig. 4). Although creating a Cantilever prosthesis using only right central Incisor as an abutment was an option, two retainers were given for better support and retention, the amount of the diastema seen in the anterior region and also to decrease the amount of stress on single abutment, if given.<sup>1</sup> The two retainers were connected by a minor connector, which was extended on to the rugae area, in the valleys of the rugae.

The dimension of the connector was 2 mm with a relief provided by using 0.2 mm relief wax.<sup>1</sup>

After making the wax pattern, casting was completed and a coping trial was tried in the mouth (Fig. 5 and 6). After verifying the fit of the casting, ceramic build up (Vita, Germany) was completed and the bridge was cemented (Fig. 7 and 8) after necessary occlusal adjustments using Glass Ionomer luting cement (Type I).



**Fig. 1: Preoperative view showing excessive anterior edentulous span**



**Fig. 2: Tooth preparation done**



**Fig. 3: Provisionalisation**



**Fig. 4: Wax pattern with loop connectors**



**Fig. 5: Coping trial: Frontal view**



**Fig. 6: Coping trial: Occlusal view**



**Fig. 7: Final Prosthesis: Frontal view**



**Fig. 8: Final Prosthesis: Occlusal view**

## Discussion

Replacement of missing anteriors with maintenance of space is a difficult esthetic challenge for a Prosthodontist.<sup>3</sup> If for some reason, implants are not a viable treatment option, the loop connector furbishes as a simple yet esthetically admirable solution. A loop connector is a non-rigid connector and consists of a loop on the lingual aspect of the prosthesis that connects adjacent retainers and/ or pontics.<sup>2</sup> This connector has been used not only to manage excessive pontic space but also to splint pathologically migrated teeth.<sup>4</sup>

From a biomechanical aspect, a hygiene efficient design of the prosthesis is paramount while at the same time, maintaining the strength is also important. The loop connectors are less rigid as compared to conventional connectors but this can be overcome by increasing the

diameter and restricting the length of the loops.<sup>5</sup> Another point to be noted is not to make the loops so thick that they interfere with tongue movements and phonetics. It has been documented that if loop connectors are not made overtly thick and have intimate contact with the underlying mucosa, interference in tongue movements and discomfort in speech was a minor problem and is overcome within no time.<sup>5</sup>

### **Conclusion**

The loop connector can serve as an excellent treatment alternative to the prosthodontic dilemma of maintain existing spaces while replacing anterior teeth. Proper design on the part of the dentist and regular oral hygiene maintenance by the patient are the keys to a successful outcome.

**Conflict of Interest: None**

**Source of Support: Nil**

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