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CASE REPORT

LOOP CONNECTOR: A TREATMENT OPTION TO ACHIEVE OPTIMAL ESTHETICS FOR MAINTAINING THE DIASTEMA – A CASE REPORT

Vishal Singh[1], Sumit Singh[1], Vinay Gupta[1], Ajit Kumar Sinha[2]

[1]Senior Lecturer, Department of Prosthodontics, [2]Reader, Department of Public Health Dentistry, Vananchal Dental College & Hospital, Garhwa, India

ABSTRACT:
Patients with missing anterior teeth, along with diastema have very limited treatment options to restore the edentulous space. Replacement of single anterior tooth is a complex and challenging procedure that can be accomplished either by implant-supported restorations or conventional porcelain-fused-to-metal or resin-bonded fixed partial dentures. . If an implant-supported prosthesis is not possible, loop connector fixed partial denture may be the simplest and best solution to maintain the diastema and provide optimum restoration of esthetics. . 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.
Key words: anterior edentulous space, diastema, esthetics, abutment.

Corresponding author: Dr. Vishal Singh, Department of Prosthodontics, Vananchal Dental College & Hospital, Garhwa, India, E-mail: drvishal145@gmail.com

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INTRODUCTION

Replacing a single tooth in the esthetic region has always been considered a Prosthodontic challenge. Different esthetic treatment options are available for replacement of single anterior tooth i.e. implant supported restorations as well as conventional porcelain fused to metal and resin bonded fixed partial dentures.[1]

Loss of tooth normally causes drifting of the adjacent teeth and consequent narrowing of the pontic space. However a greater difficulty faced in replacement of the tooth results in cases of flaring of the teeth or diastema or interdental spacing which is present before the loss of the tooth. This is a challenging clinical situation for the Prosthodontist to restore the edentulous space. The use of a conventional fixed partial denture (FPD) to replace the missing tooth may result in too wide anterior teeth, an over-contoured emergence profile, which results poor esthetics. The diastema resulting from the missing central incisors can be managed with implant-supported prosthesis or FPD with loop connectors. [2,3,4]

If diastema is to be maintained and implant- supported prosthesis is not selected as a treatment option because of any reason, loop connector fixed partial denture may be the simplest and best solution which also provides optimum restoration of esthetics.[5] This clinical report describes a technique to fabricate a four unit FPD with a modified palatal loop connector to provide maximum esthetic and functional correction for a patient with diastema between lateral and central incisor and missing central incisors.

CASE REPORT

A 42-year-old female patient reported to the department of prosthodontics, with the chief complaint of missing teeth in upper left front region. On intraoral examination, it was seen that left maxillary central incisor was missing and the edentulous space was large **(Figure 1)**.

Figure 1: Preoperative picture showing missing teeth

The patient gave a history of trauma due to a fall from a bike over two years ago and subsequent avulsion of the tooth.A conventional FPD was not possible due to large spaces between the anterior teeth. Patient was neither willing for implant placement nor a removable partial denture. He wanted a fixed alternative for his missing tooth. In fixed partial there was mainly two options, one is spring cantilever FPD and other is loop connectors. Spring cantilever FPD was not planned as no posterior tooth needed a crown. So treatment plan chosen was a loop connector FPD with the left central incisor as pontic and right central incisor and left lateral incisor and left canine as the abutment teeth, maintaining diastema between the pontic and the retainers.

PROCEDURE

Tooth preparation was done in relation to the right central incisor and left lateral incisor and left canine, with equigingival in order to enhance the esthetics as it prevents the color of the metal from showing thorough translucent enamel.[6]

Gingival Retraction were carried out and a polyvinyl siloxane (Aquasil soft putty and Aquasil LV) impression was made using putty reline technique in a rim-lock impression tray and removable dies were fabricated. Die ditching was done to expose the restoration margins.

Patterns of the modified FPD with loop connectors were fabricated with blue inlay wax. The palatal loops connecting the pontic to the retainers on the right central incisor and the left central incisor and from left central to left incisior were made with round 14 gauge wax. Care was taken to keep the loops away from rugae. Rest of the laboratory procedures were common with the conventional metal- ceramic FPD construction. Try in was done and interferences if any were removed. (**Figure 2)**

Figure 2: Metal try-in

The loop connectors in the final prosthesis were polished to high shine **(Figure 3)**.

Figure 3: Occlusal view of the prosthesis

Figure 4: The FPD cemented in mouth

The surfaces of abutment teeth were steam cleaned and the restorations were cemented with Glass ionomer cement GIC) Type I luting cement **[Figure 4]**

DISCUSSION

Connectors basically link different parts of FPD (i.e., pontic and retainers). Thus constitute an important part of FPD. The presence of anterior extensive diastema along with missing central incisors with wide spaces is a difficult esthetic problem to resolve with conventional FPD. Maximum esthetic results may be obtained only if the natural anatomic forms of the teeth are protected and the diastema is maintained.[7]

Other available options are implants and removable partial denture but loop connector fixed partial denture is used in cases of excessive mesiodistal width of pontic space when fixed partial dentures are planned. [8]

The size, shape and position of connector affects the success rate of the prosthesis.[9]

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. Their 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.[10-12]

CONCLUSION

Although loop connectors are not commonly used, but it serves as an excellent alternative treatment option in cases with diastema and interdental spacing. It required when an existing diastema is to be maintained in a planned fixed prosthesis, as in the above case. This prosthesis resulted in an esthetic result and required minimal adjustments.

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