

ANTERIOR LOOP CONNECTOR FIXED PARTIAL DENTURE IN REPLACING MISSING CENTRAL INCISOR: A CASE REPORT

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ABSTRACT:

Replacement of single anterior tooth is a complex, challenging procedure that can be accomplished with implant-supported restorations as well as conventional porcelain-fused-to-metal and resin-bonded fixed partial dentures. Different esthetic treatment options must be explored in treating such patients. Drifting of teeth into the edentulous area may reduce the available pontic space; whereas a diastema existing before an extraction may result in excessive mesiodistal dimension to the pontic space. Although rarely used, loop connectors are sometimes required to address this problem of excessive mesio-distal pontic space. Loop connectors offer a simple solution for a situation involving an anterior edentulous space albeit with the maintenance of the diastema. 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, spring cantilever fixed partial denture.

INTRODUCTION: Replacement of single anterior tooth can be achieved through different options viz dental implants, resin bonded bridges, conventional fixed partial dentures¹. Patient's exacting demands, on many occasions defeat the possibility of ideal treatment. In some cases, adapted treatment plans have to be tried. A case is reported where maxillary central incisor was replaced with fixed dental prosthesis incorporating dual loop connectors.

CASE REPORT: A 35-year-old female patient reported to the Department of Prosthodontics, college of dental sciences, Davangere with a missing right maxillary central incisor. The anterior edentulous space was large; there was a partial spacing present between anteriors. A single tooth implant was a viable alternative as it would allow a restoration maintaining both the mesial and distal diastema. However, an implant would entail surgery and a more protracted treatment². But the patient was neither willing for orthodontic treatment and nor surgery for implant placement and wanted an immediate fixed alternative for the central incisors. There were only two treatment options left: 1) a loop connector fixed partial denture and 2) a spring cantilever (which is in fact a variation of loop connector)³.

In this case, the patient did not require any posterior crowns and the left central incisor and the right lateral incisor needed certain esthetic corrections.

Therefore, it was decided to fabricate a double loop connector fixed partial denture with the right central incisor as pontic and left central incisor and right lateral as the abutment teeth, maintaining diastema between the pontic and the retainers.

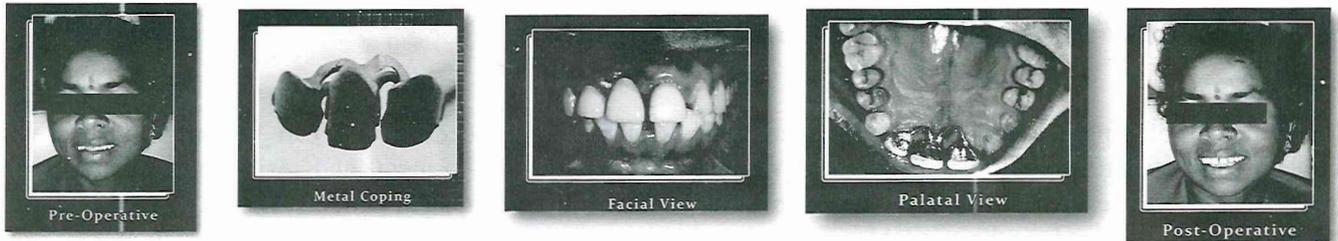
Procedure: Tooth preparation was done in relation to the right lateral and left lateral with slight sub gingival finish line. Retraction procedures were carried out, a polyvinyl siloxanes (Aquasil Soft Putty and Aquasil LV, Dentsply Inti) impression was made using the putty relined technique in a rim-lock impression tray and removable dies were fabricated. Die ditching was done to expose the restoration margins. As a result, the soft tissue architecture around the abutment dies was lost. A decision was made to fabricate a soft tissue mask around the removable dies.

The impression surface of the final rubber base impression (the same one used for making the removable dies) was first coated with a thin layer petroleum jelly and a light body addition silicon (Aquasil LV, DENTSPLY Int) impression material was injected around the abutment die. Then the final impression was firmly pressed on to the dies. Thus, a soft tissue cast was formed⁴.

Wax pattern for the retainers were fabricated with blue inlay wax, casted and ceramic buildup done. The palatal spring cantilever connecting the pontic to the retainers on the right central incisor and the right canine were made with round 14 gauge wax. Care was taken to keep the spring away from the rugae. The rest of the laboratory procedures were common with the conventional metal-ceramic FPD construction. Prior to final cementation, the loop connectors were polished to high shine .

Conclusion:

Although they are rarely used, loop connector FPD are sometimes required when an existing diastema is to be maintained in a planned fixed prosthesis, as in the above case. It offers a simple solution to a prosthodontic dilemma involving an anterior edentulous space, albeit with the maintenance of the slight diastema.



DISCUSSION: In a loop connector fixed partial denture, the connector consists of a loop on the lingual aspect of the prosthesis that connects adjacent retainer and/ or pontic. The loop may be cast from sprue wax that is circular in cross section or shaped from platinum-gold-palladium (Pt-Au-Pd) alloy wire⁵. The choice is entirely up to the dentist or the dental laboratory. Meticulous design is important to ensure that plaque control is not impeded.

The palatal connector in spring cantilever fixed partial denture is a type of loop connector.

However, the connector here is a thin and resilient bar, closely adapted to the palate so that it is partly supported by soft tissue⁶. It connects the pontic to a posterior tooth or teeth requiring full coverage crowns. Although in a rare instance healthy and sound, posterior teeth have been used as abutments to replace a maxillary anterior tooth with diastema, using a resin bonded spring cantilever fixed partial denture⁷. The long palatal connector in spring cantilever fixed partial denture may deform, if thin, and produce coronal displacement of the pontic; it may interfere with speech and is often poorly tolerated⁸. For these reasons this design is seldom used.

In the above case, the loop connector FPD not only addressed the problem of excessive mesio-distal width pontic space, but it also corrected the axial alignment of the left central incisor and right lateral incisor . It is also easy to clean and maintain. The connectors should not be overtly thick and should have an intimate contact with the underlying mucosa; otherwise, there are chances that the patient may develop the annoying habit of pushing the tip of the tongue into the gap between the loop and the mucosa exerting undue stresses onto the

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