LOOP CONNECTORS IN FIXED PROSTHODONTICS: A CASE REPORT

Dhiren Sanjeev Shah[1], A.P. Nirmal Raj[2], Aatika [3], Pratik Prakash Bumb[4]
Post Graduate [1,3,4] Professor & Head [2]
1-4- Department of Prosthodontics and crown and bridge, Teerthanker Mahaveer Dental College and Research Centre, Moradabad, Uttar Pradesh, India

Abstract
Replacing the maxillary anterior teeth has been a challenge for the dentist. Along with high esthetic requirements, exacting patient demand leaves a limited margin for achieving a functionally acceptable and esthetically pleasing prosthesis. Anterior interdental spacing is not an uncommon clinical finding. Though minor spacing may add to the overall esthetic value of face, this space might be unacceptable to few patients. This article presents a case report of prosthodontic rehabilitation of a patient with missing 21, 22 who reported to the department with a quack prosthesis in its place.
Key Words: loop connector, interdental spacing, esthetics, fixed partial denture.

INTRODUCTION

Various treatment options f or rehabilitation of maxillary anterior teeth like removable partial denture (RPD), conventional fixed partial denture (FPD), implant supported prosthesis are available.[1] The challenge for the prosthodontist is to determine whether the space can be eliminated without compromising the esthetics.[2] Violation of the natural tooth form in relation to size, shape, number, etc. in the prosthesis not only undermines the esthetics but also affects the occlusal function.[3]

Loop connector, a type of non-rigid connectors[4] is a simple[3], cost effective alternative to implant supported prosthesis when complete elimination of interdental spacing cannot be achieved as in this case.

CASE REPORT

A 27 years old female patient reported to the department of prosthodontics and crown and bridge, Teerthanker Mahaveer Dental College and Research Centre, Moradabad, Uttar Pradesh with a chief complaint of missing upper front teeth and wanted them to be replaced for a natural and pleasing smile. Complete case history was recorded. The reason for the loss of teeth was due to a trauma 3 years back. Intraoral examination revealed a quack prosthesis extending from 11 to 23 (figure 1). On removal of the prosthesis it was found that in order to gain space the labial tooth structure of vital 11, 23 was sectioned vertically by the quack and clinical crown height of 23 was undermined. Presence of spacing between the remaining maxillary anterior teeth and limited crown height space due to protrusion of maxillary and mandibular anterior teeth were other important findings related to diagnosis and treatment planning. No pain associated with respect to 11 and 23 and electric pulp testing showed vital pulp with respect to both the teeth.
The patient was informed about the various treatment options out of which conventional FPD following orthodontic treatment seemed to be the wise treatment option in this case but due to physical disadvantage, the patient denied multiple orthodontic visits. As the tooth structure of 11 and 23 was already reduced, FPD with loop connectors was planned.

Composite buildup was done with respect to 11 and 23. Alginate impression was made after the initial tooth preparation. Acrylic denture teeth were arranged in place of the missing teeth on the cast and the adjacent abutment teeth were carved into an ideal tooth form. Palatal loops joined all these teeth together (figure 2A). A putty(C silicone, Zermack Zetaplus) index was then made over the cast (figure 2B). The abutment teeth preparation was then completed and an equigingival finish margin was established. Gingival retraction(Ultrapak 02 ultra-dent) was done with respect to the abutment teeth and an elastomeric final impression (C silicone, Zermack Zetaplus) was made by putty wash two step impression technique(figure 3). The check cast and the putty index made previously was used for fabrication of temporary restoration. Tooth coloured self cure acrylic temporary bridge (figure 4) with loop connectors was then cemented using the silicone based temporary luting cement(Temposil, Coltene). Bite registration was done.(Aluwax, Maarc)

The loop connectors of 2mm diameter and relief of 0.2mm beneath the connectors ensured close adaptation of the loops to the palate. Shade selection was done using the VITA classic shade guide. Following the metal coping trial (figure 5), bisque trial was performed and all the premature contacts were removed before final glazing. Moreover for ensuring optimum incisal contacts, the labioincisal line angle of the mandibular incisors were slightly rounded (figure 8). The final four unit porcelain fused to metal bridge was then cemented by using the type-1 glass ionomer cement (Ketac, 3M ESPE) (figure 9).

(A)

(B)

Figure 1. Quack prosthesis. A, frontal view; B, Intaglio surface.

(A)

(B)

Figure 2. A,Arrangement of acrylic teeth, carving ideal tooth form with loop connectors in wax; B, putty index

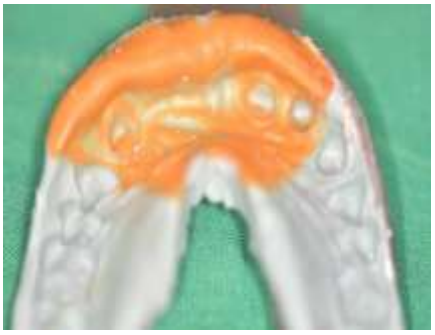

Figure 3. Final impression by putty wash two step impression technique.

Figure 4. Tooth coloured acrylic temporary bridge with loop connectors.

Figure 5. Metal coping trial

Figure 6. Roundening of the labioincisal line angle of mandibular anterior teeth.

(A)

(B)

Figure 7. Final prosthesis. A, labial view; B, palatal view

DISCUSSION

The part of the FPD that joins the retainers and/or pontics together is known as a connector.[5] FPD with loop connectors are often neglected yet highly efficient treatment modality in the armory of fixed prosthodontics.[6] The flexibility of the loop connector depends upon its length, diameter and cross section.[1] The loop should be adequately thick to withstand the functional occlusal forces and should not interfere with tongue movements.[7] Difficulty in maintaining oral hygiene due to palatal position of the loop and additional laboratory steps required for its fabrication are few drawbacks of this connector design.

Maryland bridge with loop connector or resin bonded FPD can also be considered as a viable treatment option in case of esthetic rehabilitation of the maxillary anterior teeth with interdental spacing as it follows the principle of conservation of tooth structure.[7] Comparative studies that compare the long term outcomes of conventional FPD and loop connectors are needed for the purpose of case selection and successful prosthodontic rehabilitation.

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Corresponding author

Dr. Dhiren Sanjeev Shah,
Post Graduate
Department of Prosthodontics and crown and bridge, Teerthanker Mahaveer Dental College and Research Centre, Moradabad, Uttar Pradesh, India.
Email Id: dhiren.shah80@yahoo.com
Contact No. 9404721994

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