

Diastema Beautified - A case report

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Abstract

Esthetic concerns about the smile often are the patient's main reason for seeking dental care. The prosthetic rehabilitation of a single missing anterior tooth has always been a challenging task for a clinician. Achievement of these esthetic goals presents many challenges, including occasional differing opinions between patients and clinicians as to what constitutes an esthetic smile. Replacement of the single missing anterior tooth can be accomplished by a conventional fixed dental prosthesis as well as a dental implant supported restoration. Very often, drifting of teeth into the edentulous area causes a hindrance in the restoring process. This may reduce the available pontic space and in certain situations, where a diastema exists before an extraction may result in an excessive mesiodistal dimension to the pontic space. Hence, to address this problem loop connectors fixed dental prosthesis provides a simple solution to deal with excessive mesio-distal pontic space with the maintenance of the diastema. This case report presents a treatment option to achieve ideal esthetics by providing a loop connector to address the case with excessive space in the anterior region.

Introduction

Replacement of a single missing anterior tooth can be achieved through different treatment modalities like dental implants, conventional fixed dental prosthesis and resin bonded bridges. Various factors have to be considered when deciding the appropriate treatment modality. In certain situations the pontic area presents with excessive mesio-distal width. Hence, this reduces the possibilities of restoring the tooth with conventional treatment options. Sometimes, the exacting demands of the patient defeats the possibility of an ideal treatment plan. In such situations, a treatment plan that maintains the morphology, esthetics and patient's demands dictates the rehabilitation. In this case report, patient's right maxillary central incisor was replaced with a fixed dental prosthesis incorporated with palatal loop connectors to maintain the diastema. ⁽¹⁾

Case Report

A 45-year-old female patient reported with a missing right maxillary central incisor (Fig. 1). Her prime concern was replacement of the tooth as well as maintenance of midline diastema as it existed before she lost her tooth. The remaining upper and lower anterior teeth also had generalised spacing. On clinical examination the mesio-distal width of the edentulous span was seen to be larger than the approximate mesio-distal width of the adjacent central incisor. Hence, a single tooth implant was one of the most viable alternatives as it would allow a restoration that would maintain both the mesial and distal diastemas and would be a conservative option in terms of no disturbing the adjacent teeth. ⁽²⁾ However, the patient denied to go in for a surgical procedure and desired an immediate fixed alternative for the replacement of the right central incisor. After the patient's comfort and demands were assessed, it was mutually decided to go in for the most

suitable option that is a loop connector fixed dental prosthesis. The loop connector fixed dental prosthesis was designed by taking the left central incisor and the right lateral incisor as the abutment teeth and palatal loop connectors were placed to maintain the diastemas between the pontic and the retainers.

Procedure

Radiological investigations were done with the help of intraoral periapical radiographs to evaluate the condition of the abutment teeth. Maxillary and mandibular diagnostic impressions were made. Two diagnostic models were made to in order to decide the suitable treatment plan. On the first diagnostic model, wax-up for a conventional fixed dental prosthesis was designed and showed to the patient. Since, the mesio-distal width of the pontic space was very wide, hence it looked unesthetic. On the second diagnostic model, a fixed dental prosthesis was designed with a loop connector on the palatal aspect in order to accommodate diastema and to make the replacement esthetic and in accordance with the overall appearance and alignment of the patient's other teeth. After both the mock wax-up's were shown to the patient, she desired the second treatment plan that was designed with a loop connector as maintenance of diastema was her chief concern. Tooth preparation of the maxillary left central incisor and right lateral incisors were done with sub gingival finish line (Fig. 2). Gingival retraction procedures were carried out before final impression were made (Aquasil Soft Putty and Aquasil LV, Dentsply Intl) using the putty relining technique. The loop connectors were extended in the valleys of the rugae and designed in order to avoid pressure on the incisive papilla. The metal framework casted bridge was tried before ceramic build up was completed (Fig. 3). The loop connectors were polished to high shine to reduce the chances of food accumulation

(Fig. 4). Following the glazing and polishing the prosthesis was cemented (Fig. 5). The overall smile of the patient was enhanced with the reinforcement of midline diastema (Fig. 6).



Fig. 1



Fig. 2



Fig. 3



Fig. 4



Fig. 5



Fig. 6

Discussion

Meticulous designing of the palatal loop is a very important aspect of a fixed dental prosthesis to ensure that plaque control is maintained.⁽³⁾ The role of the loop connector is to connect the adjacent retainers and/or the pontic and also gives the liberty to the clinician to provide diastema in the prosthesis. The loop may be cast from sprue wax that is circular in cross section or shaped from platinum gold palladium (pt-au-pd) alloy wire depending upon the choice of the clinician or the lab technician.⁽⁴⁾ A spring cantilever fixed dental prosthesis could have been another less time consuming alternative to the loop connector fixed dental prosthesis⁽⁵⁾. The loop connector is a thin and resilient bar, closely adapted to the palate so that it is partly supported by soft tissue and connects the pontic to a posterior tooth or teeth requiring full coverage crowns. The loop connector fixed dental prosthesis not only addressed the problem of excessive mesio-distal width of the pontic space, but it also provided the diastema patient desired. 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⁽⁶⁾. The prosthesis was simple to maintain as it could be cleaned easily.

Conclusion

Use of innovative techniques to achieve esthetic results in fixed dental prosthesis treatment procedure makes loop connectors a suitable and a viable treatment option.⁽⁷⁾ Presence of excessive spacing in the midline makes esthetic replacement of the missing tooth a great challenge for the clinician. In such cases, Loop connectors can serve to be a great treatment option as it has several advantages when it comes to the esthetic appearance. Often, there are chances that the patient might object to the projecting loop connector in the

palatal region that can be a hindrance to the rest position of the tongue and it might be a potential food lodgement area for the patient. The incorporation of loop connector is an excellent treatment option if a patient can get adapted to the palatal loop in cases where excessive space is present in the esthetic zone.⁽⁸⁾

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