

UNCONVENTIONAL DENTURES FOR IMPROVED ESTHETICS AND RETENTION: A CASE REPORT

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Abstract: While determining the treatment plan of any dental procedure, the three factors that should be considered are phonation, mastication, esthetics. The prosthetic rehabilitation of any edentulous patient has been a major challenge in dentistry. The most frequent complaint of any denture wearer patient is poor retention of mandibular denture and esthetics. The aim of this case report is to define the need of esthetics, retention, and stability in edentulous patient. This case report focuses on benefits of tooth supported over denture and immediate denture rather than conventional denture. The hopeless teeth were extracted and immediately replaced by artificial teeth to replicate the vertical dimension, phonetic and esthetics of the existing natural teeth as part of an immediate denture.

Key word: esthetics. immediate denture. retention. tooth supported over denture

Introduction

In complete denture fabrication, esthetics and retention are the primary objectives. Immediate denture is a prosthesis that is fabricated to replace the lost dentition and associated immediately following the extraction of natural teeth.¹ In general, there are two types of immediate dentures- conventional immediate denture and interim immediate denture.

In conventional type, the prosthesis can be used as the definitive or long-term prosthesis. The interim type is used for a short time after tooth extraction. After the completion of healing period, the immediate denture may be relined or replaced with the newly fabricated final denture. It was reported that the immediate denture shows numerous advantages as preservation of facial appearance and vertical dimension, phonetics and reduction of post-extraction pain².

Tooth supported overdenture is a simple and cost effective treatment than implant supported over denture. It maintains the integrity of residual ridge because bone resorption starts after tooth extraction. Retaining natural teeth as abutments for dentures can considerably reduce the progress of residual ridge resorption. Multiple teeth/roots that are present in compromised dentition can be used as abutments for overdenture fabrication. Thus the stress concentration can be shared between the denture bearing areas and

the abutments. These overdentures can reduce the impact of residual ridge resorption, loss of esthetics and compromised mastication. Overdenture also improves the retention and stability of denture³.

Clinical report:

A 61-year-old male patient reported to the Department of Prosthodontics with chief complaint of difficulty in mastication and poor esthetics. On examination, it was revealed that the teeth 13,14,23,24,34,43 were present in the oral cavity. Patient presented with no significant medical history and no occlusal and temporomandibular disorders. Overall, clinical examination and radiographic assessment revealed an unrestored partially edentulous maxillary arch with generalized periodontitis and poor prognosis of the remaining dentition. Therefore, conventional immediate denture was planned for the maxillary arch.

In the mandibular arch patient had undergone extraction 5 years back with respect to the posterior teeth. Teeth present in the mandibular arch were 34 and 43. After thorough clinical and radiographic assessment it was decided to retain the canine and premolar for tooth supported overdenture. The patient accepted the treatment plan for an immediate maxillary denture and tooth supported mandibular

overdenture and signed the informed consent for the same.

Diagnostic impressions were made with irreversible hydrocolloid (Algitex, DPI) for both maxillary and mandibular arches. Intentional root canal treatment was done in relation to 34 and 43 (fig 1,2) followed by fabrication of metal copings for both the teeth (fig.3). The metal copings were cemented using glass ionomer cement (GC gold label)



Fig.1,2 Radiographic picture of Root canal treatment irt 34,43



Fig 3 Pattern resin coping irt 34,43 & metal cast post & Placement of copings

Subsequently, primary impressions of both the arches were made with irreversible hydrocolloid (algitex, DPI). Border molding was done using low fusing impression compound in both the arches. For the maxillary arch final impressions were made with zinc oxide eugenol impression paste (DPI Impression Paste) using dual impression technique, while in mandibular arch it was made using light body polyvinylsiloxane impression material (fig 4).



Fig. 4 Final impression irt maxillary & mandibular

The impressions were poured with type 3 dental stone plaster (Denstone) to obtain the master cast. Impressions and master cast both were disinfected with 2% glutaraldehyde for 10 min. After that temporary denture base was made with auto polymerizing resin and occlusion rims were fabricated(fig.5).



Fig. 5 Fabrication of Occlusal rim

Jaw relation was recorded and mounting of maxillary and mandibular cast was done on mean value articulator. Teeth arrangement was done followed by posterior try in. Then remaining natural teeth on the maxillary cast were scraped off and the denture base was extended over the anterior region followed by anterior teeth setting. The waxed up dentures were acrylised using heat cure polymerizing resin.

On the day of insertion remaining natural teeth in the maxillary arch were extracted and denture insertion was done with respect to maxillary and mandibular arches (fig.6). Both the dentures were evaluated for proper extension, retention, stability and occlusion. Necessary corrections were made

accordingly, and post-operative instructions were given to the patient and was recalled for follow up after 24 hrs.



Fig.6 Teeth setting, extraction irt 12,13,22,23,24, immediate denture irt maxillary arch and tooth supported overdenture irt mandibular arch

Discussion:

There are three treatment modalities which are followed for fabrication of denture in patients with the loss of remaining natural teeth with poor prognosis. In First treatment modality patient has to undergo extraction of all the remaining teeth and after extraction has to wait for 7-8 weeks of healing period followed by fabrication of conventional denture. With this treatment modality patient is left not only during healing phase but also time required for the fabrication of complete denture. This may not be acceptable for socially active people. Second modality is to convert existing RPD to an interim complete denture which is not definite treatment for the patient. Third modality is to make an immediate complete denture.

The interim immediate denture is designed to enhance the esthetics, and function for a limited period of time after which it is replaced by definitive prosthesis. During the phase of teeth replacement, preservation of appearance is also important.⁴ According to Todd and Lader, level of anxiety is increased when people face loss of their natural teeth and they have to rely on complete dentures.¹ Thus immediate denture is a better treatment option for patients who are socially active and face loss of remaining natural teeth. In the present case periodontically compromised teeth requiring extraction are present in the maxillary arch. As the patient was anxious about appearance an immediate interim denture was given, however it was planned to be replaced by definitive prosthesis after proper healing.

Tooth supported over denture is a more predictable treatment modality than a conventional prosthesis that can provide a better retention, stability, esthetics, and comfort. Basically it maintains the integrity of the residual ridge by retaining some of the natural teeth thereby maintaining proprioception. The remaining natural teeth further improves the retention and stability of the denture also. It can be used universally and provide psychological benefit for the patient because extraction can be avoided.

In the present case, patient was having a periodontically healthy canine on right and premolar on the left side in the mandibular arch. Hence it was planned to fabricate tooth supported overdenture for mandibular arch by using canine and premolar as abutments. However, patient should be motivated to maintain adequate oral hygiene because poor oral hygiene can lead to loss of abutment teeth. Regular follow up should be done to evaluate oral hygiene status⁵.

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