

Management of Edentulous Patients with Excessive Lip Fullness due to Bulbous Alveolar Ridges by Giving Access Post Retained Gum-Fit Overdenture

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Abstract

Dental implants are the first priority now days among treatment modalities available for the replacement of missing tooth/teeth. Infact they are highly recommended for the complete dentures placed over the resorbed ridges. However, every patient is not a candidate for this treatment option owing to the reasons like cost or anatomic constraints. That could be the biggest reason that the dentists are now keener in saving remaining periodontally sound teeth in an otherwise compromised dentition for planning attachment based overdentures. By adopting this protocol, it not only saves money for the patient but also avoids the waiting period of osseointegration when compared with dental implants. Moreover, retention of the complete denture remains no more a concern for dentist even when flange length is inadequate. This advantage can be utilized while managing patients with significant lip fullness, where if full depth denture flange is given, it can result in monkey like appearance (bulged out lips). Such cases can be best managed by giving gum-fit dentures. This article is covering rehabilitation process of two such cases by planning access post retained gum-fit overdenture.

Keywords: Access Post System; Tooth Retained Overdenture; Gumfit Denture

Introduction

The preservation of the remaining periodontally sound teeth for planning overdenture always provides an edge over extracting them and giving conventional complete denture. This treatment modality not only fulfills the DeVan's principle of preservation of remaining tissue but also provides advantages such as improved proprioception, decreased ridge resorption, better retention, improved stability/support and increases masticatory efficiency [1,2].

In overdenture, reduction of the clinical crown up to the gingival level decreases the crown-root ratio multifold, thus remaining root becomes more stable leading to their enhanced longevity. This is the reason behind utilizing even the periodontally compromised teeth as abutments in overdenture fabrication [3,4]. The use of precision or semi precision attachments increases the retention and support of the prosthesis significantly and makes dentures comfortable while performing activities like chewing and speaking. Retentive dentures enhances patient's health by broadening the spectrum of food choices and by improving digestion due to better chewing compared to conventional complete dentures. Also psychologically it boosts the confidence of the individual during social interactions by virtue of retentive prosthesis similar to that of fixed prosthesis [5-7].

There are medical conditions where these attachment reinforced overdentures gives spectacular results like: congenital defects such as oligodontia, cleft palate, cleidocranial dystosis, ectodermal dysplasia and Class III malocclusion [8]. There are few anatomic variations which cause denture fabrication process difficult are, the presence of bulbous ridges with undercuts, prominent pre-maxilla or exostosis [1,8]. Such anatomic constraints can be managed either surgically by alveoloplasty or conservatively via modifying final prosthesis by using unconventional techniques of fabrication [2].

This article is focused to highlight management of periodontally compromised teeth and bulbous ridges by giving access post retained gum-fit overdentures.

Case Report

Case 1 (Figure 1 and 2)



Figure 1: Pre-operative intra oral photographs, extraction and alveoloplasty for maxillary anterior region, access post and metal copings, permanent record base with metal mesh, post-operative intra-oral view, final denture.



Figure 2: Pre and post-operative extra-oral view showing esthetics and lip competency.

A 55-year-old female patient reported to the Department of Prosthodontics for complete extraction of remaining teeth and replacement with complete denture. Her chief complaint was continuous pain in mouth for which she was undergoing periodontal treatment for the last one year. She had removable partial dentures for both upper and lower jaws but she hardly wore them due to increased pain during usage. Clinical examination showed significant findings: mouth breathing, potentially competent lips, generalized deep periodontal pockets with discharge. Systemic examination and routine investigations were not significant. The only firm teeth present were 13, 15, 16, 23, 33, 34, 35, 43, 44, 45 hence, RCT was performed. Rest all were grade 3 mobile teeth and were extracted. Maxillary anterior alveoloplasty was carried out to reduce alveolus bulge in upper maxillary region during extraction procedure.

Mouth Preparation: Root Canal treated teeth were reduced to 1 mm coronal to the gingival level. Post space was prepared in 13, 23, 34, 44 and access post was cemented using GIC luting cement. Metal copings were casted and cemented over the remaining firm teeth. Diagnostic impressions were made in alginate and secondary impressions in elastomeric addition silicon material.

Permanent record base fabrication: Modelling wax was adapted on secondary cast and the permanent record bases were acrylised using fiber reinforced heat cure acrylic resin. The abutment teeth act like fulcrum and acrylic thickness in minimum in nylon cap regions so there are high chances of denture fracture under occlusal forces. To combat this problem, metal mesh was incorporated during packing stage of acrylisation to increase its strength.

Female attachment fixation in the permanent record base (direct method): Nylon caps were placed intraorally on access post and space was created for them in permanent record base. These were fixed with self cure acrylic resin intraorally while ensuring complete seating of record base antero-posteriorly. Wax rims were fabricated over record bases for jaw relation. Teeth arrangement was done and while denture wax trial, lip bulge was still noticed so decision was made to remove labial flange in both upper and lower dentures (gum-fit dentures). Final denture processing was done. Final denture was checked for esthetics, lip competency, occlusion, stability and extensions. Patient was educated for removal and insertion methods, cleansing instructions of dentures and abutment teeth. Regular follow up visits were scheduled for first three months on weekly basis. Gingival health improved drastically and patient was satisfied with her dentures.

Case 2 (Figure 3)



Figure 3: Access post and metal copings, post operative intra-oral view, final dentures, post-operative extraoral view.

Another female patient aged 68-year-old, having lost her teeth because of caries and periodontal problems over a span of 15 years and was unhappy with her present removable partial denture and wanted a prosthesis with more stability as compared to the previous one. Root stumps were present 11, 17, 21, 22, 23 and 34, 43, whereas 27 was healthy. Patient had angle's class-II malocclusion in her natural teeth.

Mouth Preparation: After clinical evaluation, access post was planned for 11, 23, 34, 43 and only metal coping for the rest of the teeth. 22 was only 4 mm length and patient was not ready for extraction so it was root canal treated and restored with GIC along with fluoride varnish on coronal surface (no metal coping was given). As 27 was a healthy tooth without overeruption, it didn't require any intervention. Final impression was made in elastomeric addition silicon material.

Metal framework (minor connector) fabrication: Duplicate refractory cast was made using agar material, casting wax was adapted and metal framework was casted for both upper and lower jaws to reinforce the denture strength.

Permanent record bases were fabricated having metal framework incorporated within during packing stage. Nylon caps were inserted in it by chair side direct method using autopolymerizing denture-base resin. Modeling wax rims were fabricated over this record base and jaw relation was recorded. In order to achieve class-I occlusion one extra lateral incisor was added in lower anterior and one extra premolar was added in first quadrant. Wax trail was carried and on finding lip bulge maxillary anterior region, the denture flange in respective area was trimmed off and gum fit denture was planned for upper jaw. Final dentures were processed in heat cure acrylic and checked for esthetics, occlusion and extensions. Regular follow up visits were scheduled for first three months on weekly basis. There was enhancement in the gingival health as a whole and patient was happy with the results. One year follow up revealed healthy abutments and surrounding soft tissues.

Discussion

An access post retained denture is one of the viable options available for edentulous patients suffering from masticatory inefficiency. It provides all the required-stability, retention, esthetics and strength. (As the name says, it also gives access to the periapical tissues and ability to retreat if they get infected after treatment). Dental professionals should be well versed about this treatment option and then patients should be guided in the same manner before going for extraction of last standing teeth in mouth. Implants should not be blindly taken as a treatment option as even tooth supported overdentures also give excellent results. It is evident from the literature that the over-denture patients had a chewing efficiency one-third higher than the conventional complete denture patients [5,9,10]. The success of the tooth-supported overdenture treatment depends upon the proper attachment selection for the particular case. Various factors for attachment selection include available buccolingual and inter arch space, the amount of bone support around abutments, opposing dentition, clinical experience of the operator, patient's motivation and manual dexterity of patient for prosthesis use and maintenance. The reinforcement of the denture base with metal framework would be effective in reducing overdenture fracture (due to reduced thickness of acrylic resin around the bulky attachment assembly) [10]. Like any other prosthesis, overdentures also require periodical checkup, replacements of loose female component (nylon cap) and topical use of fluoride agents such as stannous fluoride or sodium fluoride gel to reduce the caries risk on the abutment teeth [3,5,7].

Conclusion

Tooth supported overdentures are advantageous in not only preservation of the residual bone by root banking but also can be a major contributor in retention of the prosthesis if given with precision attachments. Patients' acceptability increases for such prosthesis because of improved stability and proprioception while eating. Though it is an era of dental implantology but still conventional methods are also in use due to improved design of prosthesis and advances in precision attachments which have kept old treatment methods still alive like tooth supported overdentures.

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