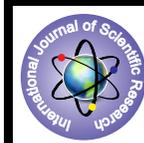


Customized Complete Denture for Xerostomic Patients With Resorbed Ridge



Dental Science

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ABSTRACT

The environment of the oral cavity is to a large degree created and regulated by saliva. The fact that the teeth and oral mucosa are in constant contact with and bathed by the saliva would suggest that this environmental agent could profoundly influence the state of oral health of a person especially in cases of partially or completely edentulous patients. This case report describes a technique for the construction of liquid supported denture in the maxillary denture and a reservoir is placed in the mandibular denture especially beneficial and constructed in cases of xerostomic patients

Introduction

Saliva plays a critical role in retention of dentures due to its lubricating function and thus, dry mucosa often leads to compromise in the retention of prosthesis. Furthermore, salivary flow also facilitates in the mastication and food bolus formation and its swallowing. In denture patients it also plays a role in articulation and speech. Thus, as a result chief complaint of edentulous patients especially undergoing radiotherapy is xerostomia and consequent disturbed denture retention.[1]

This case report describes a technique for the construction of liquid supported denture in the maxillary denture and a reservoir is placed in the mandibular denture especially beneficial and constructed in cases of xerostomic patients.

Case Report

A 70 year old male patient reported in the Department of Prosthodontics for the fabrication of complete dentures of completely maxillary and mandibular ridges. Patient presented with medical history of chemotherapy one year back for thyroid carcinoma and the chief complain of the patient was of dry mouth. On intra-oral examination patient had favourable fully healed maxillary and mandibular edentulous ridges with mandibular ridge resorbed. (Fig-1)



Fig-1 Intraoral view showing dry mouth

As patient was edentulous past since 5-6 years. Since the patient had undergone a radiation therapy thus dry mouth symptom had to be taken care of along with resorbed mandibular ridge denture retention was the main concern. Thus, construction of liquid supported denture in the maxillary denture and a reservoir is placed in the mandibular denture as xerostomic patients

wearing prosthesis can benefit immensely from it.

Technique

Construction of reservoir denture was done in two stages; first a conventional denture was given to the patient with a spacer on the tissue side and once the patient was comfortable with the denture, it was then converted into a reservoir.

Stage-1

1. Primary impression was made in irreversible hydrocolloid . (Fig-2)



Fig-3 Primary impression made in alginate

2. Custom trays were made in conventional manner and secondary impressions were made in light body addition silicon.

3. Jaw relations and wax try in was done in conventional manner.

4. Vacuum formed biostarch sheet of 2mm was heat pressed and cut it 2-3mm short of border extensions over the maxillary master cast and. This sheet spacer was later used at the processing stage.(Fig-4)



Fig-4 Maxillary master cast with biostrach sheet

5. A thin layer of putty was adapted over buccal flange area of mandibular waxed up denture base after removal of wax and a thin layer of wax was then used to cover the putty layer. As a result putty was sandwiched between tempory denture base and wax layer. (Fig-5)



Fig-5 sandwiched putty over buccal flange of mandibular denture base

6. Putty layer was again placed in between two layers of heat cure acrylic resin and later removed after heat curing of denture.

7. Pinpoint hole was kept patent before sealing the slit in mandibular prosthesis for injection of artificial saliva substitute.(Fig-6,7)



Fig-6,7 –Pinpoint hole before and after sealing

8. Denture was then finished and polished with the sheet and checked in the patient’s mouth for its retention, stability, occlusion, border extensions and it was finally inserted and patient was called after two weeks till that time he became used to the denture(Fig-8)



Fig-8 Finished and polished complete maxillary and mandibular denture

Stage-2

9. Maxillary prosthesis is now ready to be converted into a reservoir Denture .The first step was to duplicate the tissue surface of the denture. For this purpose elastic impression of the denture base was made with addition silicone (putty) impression material.(Fig-9) After separation impression was poured with dental stone to get the positive replica of the denture. On this replica of the denture vacuum formed biostrach sheet of 0.5 mm was heat pressed cut into desired shape to form the ultimate denture base. The spacer originally embedded in the denture was removed which created a space of 1-1.5 mm for the liquid. The biostrach sheet was then connected and sealed to the denture base with a cyanoacrylate adhesive. Two inlets were made in the denture in the mid palatine raphe for injecting artificial saliva substitute .(Fig-10) (Fig10,11).



Fig-9 Putty index of tissue surface of maxillary denture

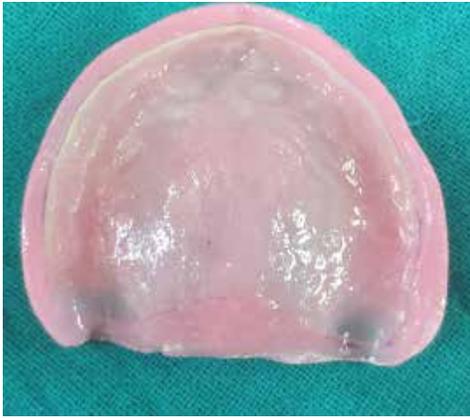


Fig-10 Biostarch sheet sealed with cynoacrylate adhesive



Fig-11 Post-Operatively

Discussion

Xerostomia is a clinical condition caused by a decrease in the production of saliva. It may present as part of a systemic disease such as Sjogren's syndrome, diabetics, alcoholism or as side effects of medications or as major side effect of radical radiation therapy especially in cases for head and neck malignancies. [2-3] Because radiation treatment for malignancies progresses, parenchymal destruction of salivary glands and their vascular supply occurs which in turn leads to xerostomia.[4-7]

In order to enhance retention in xerostomic patients oral moisturizers, denture adhesives, denture reservoirs, various denture bases, and various surface treatments are used in order to relieve them from the effects of xerostomia. [8] This case report also describes one of the simple technique for the construction of liquid supported denture in the maxillary denture and a reservoir is placed in the mandibular denture. Xerostomic patients wearing prosthesis can benefit immensely from it as reservoir chambers that allow for a more even controlled release of the artificial saliva may make this treatment more acceptable to more patients. Also the principle of this technique allows fabrication of liquid supported denture which is not flexible which is closely fitted to the oral mucosa, thus important requirement of retention is fulfilled.

Conclusion

The technique of fabrication is simple and it provides good lubrication of the oral tissues. This paper provides a simplified approach in construction of complete denture in a xerostomia patient by fabricating an artificial saliva reservoir denture made from routine denture base material. Further research in more physiologic salivary substitutes and in a better release and delivery mechanism appears warranted.

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