PROSTHODONTIC REHABILITATION OF XEROSTOMIA PATIENT WITH SALIVARY RESERVOIR PARTIAL DENTURE –A CASE REPORT

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Abstract

Xerostomia is the subjective sensation of oral dryness, usually, but not invariably, associated with hyposalivation. The major dental problems reported by xerostomic patients include a high caries rate, repeated failure of dental restorations, and early tooth loss that necessitate various degrees of prosthodontic treatment. Xerostomia is a relatively common complaint that can make the wearing of dentures very uncomfortable .To overcome this problem, a number of techniques have been proposed for incorporating reservoirs, containing salivary substitutes, into dentures. These have varying degrees of success. This paper presents a case of a patient suffering from xerostomia who was successfully treated with a new form of reservoir denture. This new partial denture technique resulted in a reservoir denture that provided good lubrication of the oral tissues, was easily cleaned by the wearer and was produced from routine dental materials.

Key Words Xerostomia, reservoir, partial denture

INTRODUCTION

Xerostomia is a subjective complaint, often referred to as reduced salivary flow[1].Xerostomia is a common patient complaint that could be a result of systemic conditions like rheumatic, Sjogren's syndrome, salivary gland diseases, Diabetes mellitus, Parkinson's disease, dysfunction of immune system like HIV/ AIDS, due to head and neck radiation, medication-related side effects[2,3]. Patients suffering from xerostomia may complain of not only a dry mouth, but also of difficulty in normal oral and oropharyngeal functions including eating, speaking and swallowing. Increase susceptibility to infection is also seen[4,5]. Retention of the denture is also hampered. Depending upon the cause, variety of treatment options is available. In medication induced xerostomia, dosage, timing, or a change in medication may reduce the severity of the problem. In such cases, measurement of a patient's nonstimulated salivary flow rates before and after altering their medication may be useful in gauging the success of treatment[12,13]. Gustatory stimulation of the salivary glands by mastication of sugar free chewing gums or lozenges is also helpful[14,15]. Artificial salivary stimulants may be used. To minimize patient discomfort, soft denture liners can also be used. Often, a combination of treatments may be required. Saliva substitutes containing thickening agents for longer relief and increased moistening and lubrication of the oral surfaces have been developed. These are available as solutions, sprays or gels and have multiple contents such as carboxymethylcellulose, electrolytes and flavoring agents. However, the main problem is to deliver this substitute constantly into patient's mouth without affecting his

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Fig 1: Patient's facial profile prior treatment

Fig 2: Occlusal view of patient

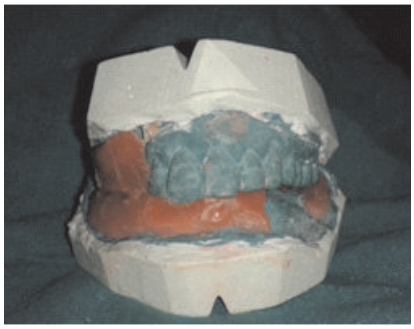

Fig: 3 Jaw relation

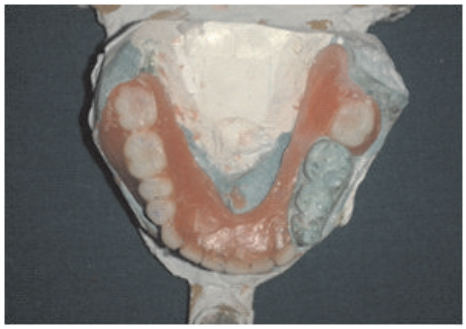

Fig: 4 Teeth setting of lower arch in the articulator

Fig: 5 After try-in remove wax from palatal area up to 2mm

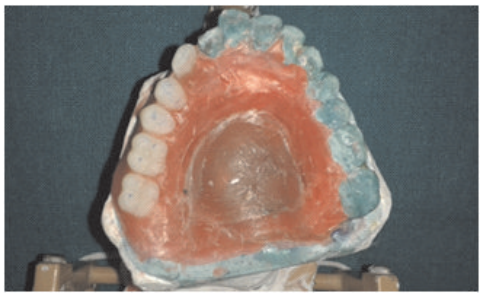

Fig: 6 Add one layer of wax after Vaseline application

normal routine. Where all treatment modalities have proven unsuccessful, the incorporation of artificial salivary reservoir in dentures, has been proposed. This case report presents a case of a patient suffering from xerostomia who was successfully treated with a new form of reservoir in maxillary partial denture where other treatment modalities had failed. This modified new techniques resulted in denture with good lubrication of the oral tissue, was easily cleansed by the wearer and was fabricated from routine dental materials.

CASE REPORT

A 55 years old lady came to dental OPD of Guru Nanak Institute of Dental Science and Research for replacement of her missing teeth in upper and lower arch (Fig:1).She gave the history of undergoing surgery and radiation therapy in her upper right side for treatment of squamous cell carcinoma. Her chief complaint was recurrent ulceration of the tongue from the remaining teeth and dry mouth. She also complained about inability to deglute properly due to lack of salivary secretion. On clinical examination partial trismus and very less amount of salivary secretion was found.

Primary impression was taken with alginate and casts were made with dental stone. Bite rim are prepared and bite registration (Fig: 3)was done. Teeth setting was done (Fig: 4) and trial was taken. The palatal portion of upper rim was trimmed up to 2mm (Fig: 5). Then vaseline was applied over the trimmed area of upper rim and one layer of wax was adapted (Fig: 6).The upper wax layer was then separated from the rim carefully (Fig: 7)and it was then flasked, dewaxed, packed and cured separately with heat cure acrylic resin to form an acrylic lid like structure. The waxed denture was then flasked, dewaxed, packed and cured separately with heat cure acrylic resin (Fig: 8).Two small holes were made over the separated acrylic lid with rose head bur. The acrylic lid was then fitted to the palatal region of the denture with auto polymerizing acrylic resin to form a hollow reservoir

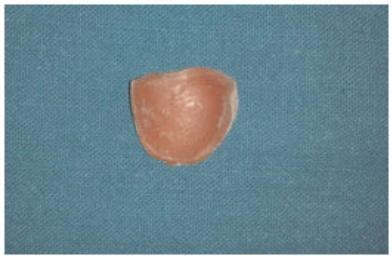

Fig: 7 Remove added wax part carefully

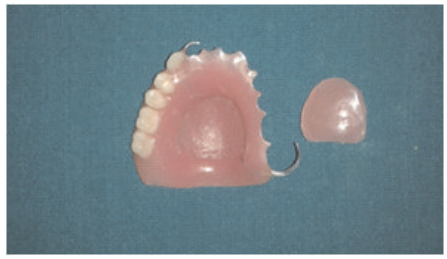

Fig: 8 Acrylic processed palatal lid with RPD

Fig: 9 RPD with palatal reservoir through hole created within reservoir

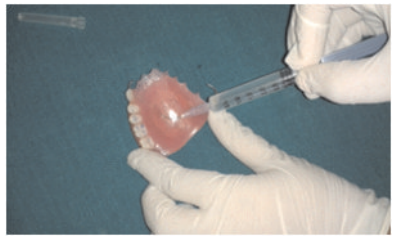

Fig:10 Placed carboxymethylcellulose by syringe

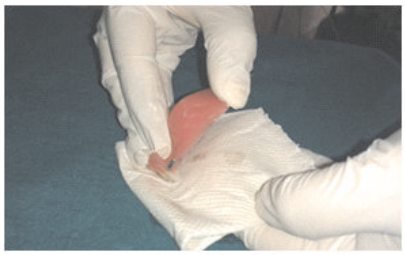

Fig: 11 Check if carboxymethylcellulose come out uninterruptedly

Fig:12 Complete prosthesis

Fig: 13 Teeth in occlusion

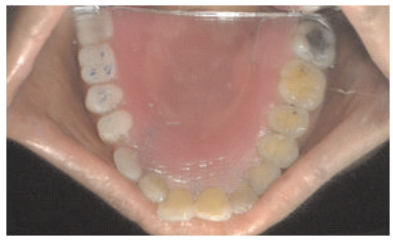

Fig: 14 Occlusal view of upper arch

Fig:15 Occlusal view of lower arch

Fig:16 Patient's facial profile after treatment

(Fig: 9). Artificial saliva substitute was introduced through one hole into the reservoir and it will come out through another hole (Fig: 10, 11).The lower denture was processed separately (Fig: 12). After final finishing and polishing the upper and lower denture were tried over the patient's mouth (Fig: 13,14,15). Patient was satisfied after having dentures with palatal reservoirs (Fig: 16).She also reported on regular follow up visit in every six months intervals and it was found that there was improved oral hygiene status with normal salivary flow induced by artificial saliva substitute.

DISCUSSION

Many patients who undergo treatment for carcinoma of the head and neck region receive a course of radiation therapy. The resultant degeneration of bony

and vascular elements create an unhealthy oral environment. A decrease in quantity and quality of saliva can also cause or exacerbate a painful oral condition.

The reservoir denture offers clinician an alternative method of treating patients suffering from xerostomia. Dentures which would ordinarily rehabilitate the edentulous patient with normal Salivary flow, are often poorly tolerated in the patient who has a diminished salivary flow because of the lack of saliva bonding between the interface of the prosthesis and the oral/gingival tissues. In an attempt to reverse these changes, and particularly to permit the wearing of dentures, artificial saliva preparations have been described. The major drawback of artificial saliva is that it must be mechanically introduced in the oral cavity by the patient at regular intervals. Patients object to carrying a bottle of artificial saliva and would prefer a more convenient saliva delivery system. Patient motivation and cooperation are an important part of successful oral rehabilitation. The dentures and the reservoir require meticulous cleaning, and patients were instructed in the use of a disposable syringe for flushing and refilling the chamber. They must be willing to have the dentures readjusted frequently to accommodate the continuing post irradiation changes taking place in the oral/gingival tissues.

CONCLUSION

This paper provides an approach in the management of a xerostomia patient by fabricating an artificial saliva reservoir partial denture made from routine denture base material. The technique of fabrication is simple and it provides good lubrication of the oral tissues. Further research in more physiologic salivary substitutes and in a better release and delivery system are needed. Reservoir chambers that allow for a more controlled release of the artificial salivary substitute may make this effort more acceptable to patients.

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