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CASE REPORT

A NEW ALTERNATIVE TO XEROSTOMIA-SALIVARY SUBSTITUTE - A CASE REPORT

***Swatipawar, Smitakhalikar, Dange S.P. and Kishor Mahale**

India

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Corresponding author: **Swatipawar**

ABSTRACT

Xerostomia refers to a subjective sensation of dry mouth. A variety of factors can cause xerostomia including radiotherapy (RT) given for the treatment of oral carcinoma. Depending on the cause, treatment is provided to a patient suffering from xerostomia. In severe xerostomia salivary substitutes can be used and if the xerostomic patient is edentulous, then reservoir space for artificial salivary substitute can be created in partial as well as complete upper or lower dentures. The methods advocated so far for incorporating reservoir space in mandibular complete denture are costly, time consuming and require extra-laboratory steps. Therefore, the purpose of this article is to report a simpler method for fabrication of maxillary reservoir denture in a 67-year-old edentulous male patient suffering from xerostomia due to RT for oral carcinoma.

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INTRODUCTION

One of the most commonly occurring malignancies in India is Oral Cancer (Ahmad *et al.,* 2005). It is highly radiosensitive and patients who receive RT of oral cavity experience some oral complications like Xerostomia. According to Glossary of Prosthodontics terms, xerostomia is defined as the dryness of the mouth from lack of normal secretions (Narhi *et al.,* 1999). It leads to taste alteration, difficulty in speech and swallowing. Hence it has a significant negative impact on the quality of patient's life. To deal with this problem, patients are often advised frequent water intake and various citrus fruits in diet for salivary stimulation. In severe situations, salivary substitutes may be prescribed. They contain carboxymethyl cellulose, flavouring agents and electrolytes (Moore *et al.,* 2001). In edentulous patients, these salivary substitutes are given by incorporating a salivary reservoir in the prosthesis itself to maintain a continuous flow of intraoral wetting. This case report presents a case of a xerostomic patient who was successfully treated with a new form of reservoir in maxillary denture. This modified technique resulted in denture that provided good lubrication of the oral tissue, was easily cleansed by the wearer and was fabricated from routine denture material also.

CASE REPORT

A 67 years old completely edentulous male patient was referred to the Dept. of Prosthodontics, at Govt. Dental College and hospital Aurangabad with a complaint of missing teeth and difficulty in eating. Intraoral examination revealed edentulous upper and lower arch, uneven lower ridge, dry tongue and dry oral mucosa. Patient's mouth was noted to be very dry with cracks at the corner of the mouth. Patient operated for cancer of alveolus 6yr back. The patient was given multivitamin supplements. He had been advised to use salivary substitute (methyl cellulose) regularly and frequently drink water to overcome the dryness and discomfort. At this stage, fabrication of complete denture with inbuilt Salivary Reservoir was planned.

Procedure

1. Preliminary impressions of the maxillary and mandibular arches were made with impression compound and final impressions using light body elastomeric impression material.
2. Maxillomandibular relations were recorded and teeth arrangement completed by conventional method.
3. Trial dentures were evaluated in the patient's mouth.
4. Extra bulk of modelling wax was added to the palatal side of maxillary denture base approx. 2mm for providing space for the reservoir. Palatal contours were adjusted and evaluated for speech variables (Fig. 1).
5. An index of the palatal surface was madeto serve as a guide for fabrication of the floor of the reservoir (Fig.-2).
6. Excess modelling wax was then removed and denture was processed (Fig-3).
7. A sheet of modelling wax was adapted on the surface of the index then invested and processed in a heatpolymerized acrylic resin to form the floor of the reservoir (Fig-4).

Fig. 1.

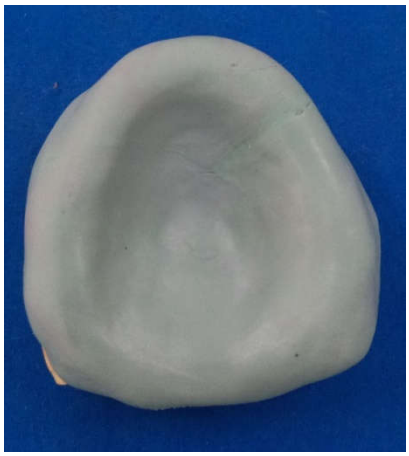

Fig.2.

Fig. 3.

Fig. 4.

8. Adaptation of the floor of the reservoir with the denture base was evaluated.
9. A bulb shaped hole was made with roughened borders in the anterior part of the floor and relined with a permanent soft liner thus achieving functional in the oral cavity.
10. Two cuts were made of 1 mm in width in the central part of plate one in the anterior and other in the posterior part.
11. Floor of the reservoir was attached to the palatal surface of denture with autopolymerising acrylic resin.
12. Salivary substitute (Wet Mouth; ICPA Health Product) injected into the reservoir through the cuts by syringe. Patient is instructed to practice this procedure until they are able to inject the saliva substitute easily.
13. Treatment record card was given to the patient to note the time when the reservoir is filled, the quantity of substitute, and the time till the reservoir was empty. One week recall appointment was made.
14. After 1 week, the average duration of flow was evaluated and recorded. The duration of flow provided by artificial saliva reservoirs should range from 2 to 5 hours.
15. Post Denture instructions:

    a) Explained that this is an adjunct to the other therapy and has to continue his medicines.
    b) To consume at least eight glasses of water per day.

DISCUSSION

The purpose of the technique is to fabricate a prosthesis that makes swallowing a control mechanism for the flow of saliva substitute. As the patient swallows, the tongue creates pressure on the anterior part of the hard palate, which, in turn, releases the substitute. On releasing pressure, the liner reverts to its position because of its resiliency and creates negative pressure inside the reservoir space that sucks air inside. The air collects at the top of the reservoir. The thickness of the palate was increased primarily in the palatal vault area with minimum increase at the periphery of the palate. Increased palatal thickness in the regions of contact areas of the tongue while pronouncing /ch/ and /j/ (tongue contacts anteriorly), /s/ and /sh/ (tongue contacts laterally) and /k/ (tongue contacts posteriorly) affects speech significantly. The volume of the reservoir was 5 ml and its working duration was 2 to 2.5 hours. As the mean number of swallowing cycles is approximately 600 cycles per day or approximately 25 cycles per hour, the amount of substitute released per functional cycle of the reservoir was approximately calculated to be about 0.25 ml. 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 flavouring agents. e.g. Wet mouth (ICPA Health Products Ltd). However, the main problem is to deliver this substitute constantly into patient's mouth without affecting his normal routine. This method utilizes routine clinical stages during fabrication of prosthesis. So, this is an easy and less time consuming procedure for xerostomia patients.

Summary

A palatal reservoir denture offers the clinician an alternative method of treating patients suffering from xerostomia. Xerostomic patients wearing prosthesis can benefit immensely from it. The use of clear acrylic for the base section permits the

clinician to determine the best size and position for placement of the reservoirs. It also enables the patient to clearly visualize the levels of saliva substitute within the chamber. This method utilizes routine materials during construction. It is easy to fabricate without tedious laboratory procedures.

REFERENCES

Ahmad N, Rai M, Khan A, Tiwari AK, Ahmad N. Palatal Obturator with Salivary Reservoir-A Case Report.

Davidson CL, Boere G. 1989. Liquid-supported dentures. Part I: theoretical and technical considerations. *J Prosthet Dent.,* 63:303-6.

Moore PA, Guggenheimer J, Etzel KR, Weyant RJ, Orchard T. 2001. Type 1 diabetes mellitus, xerostomia, and salivary flow rates. *Oral Surg Oral Med Oral Pathol Oral Radiol Endod.,* 92:281-91.

Edgar WM. 1992. Saliva: Its secretion, composition and functions. *Br Dent J.,* 172:305-12.

Moore PA, Guggenheimer J, Etzel KR, Weyant RJ, Orchard T. 2001. Type 1 diabetes mellitus, xerostomia, and salivary flow rates. i92:281-91.

Narhi TO, Meurman JH, Ainamo A. 1999. Xerostomia and hyposalivation: causes, on sequences and treatment in the elderly. *Drugs Aging.,* 15:10316.

Narhi TO, Meurman JH, Ainamo, 1999. Xerostomia and hyposalivation: causes, consequences and treatment in the elderly. *Drugs Aging.,* 15:103-6.

The glossary of prosthodontics terms. *J Prosthet Dent.,* 2005;4:81.

Toljanic JA, Zucuskie TG. 1984. Use of palatal reservoir in denture patients with xerostomia. *J Prosthet Dent.,* 52:540-44.

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