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Case Report

Salivary reservoir denture – A novel approach to battle xerostomia



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Introduction

Xerostomia is the subjective feeling of dryness in the mouth, often referred to as reduced salivary flow. Individuals usually detect they have a “dry mouth” when the flow of saliva decreases to approximately half the normal unstimulated rate of around 0.3 ml/min.¹

Causes of xerostomia are anxiety, Sjogren’s syndrome, salivary gland diseases, drug induced side effects, sequelae to head and neck radiation and general medical conditions such as diabetes mellitus. 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. Extreme discomfort in wearing dentures is a common complaint.^{2,3}

Depending upon the cause, a variety of treatment options are available. In cases where all treatment modalities have proven unsuccessful, the incorporation of reservoirs containing salivary substitutes into dentures has been proposed.

This paper presents a case report where a reservoir denture was used successfully in rehabilitating a xerostomic complete edentulous patient.

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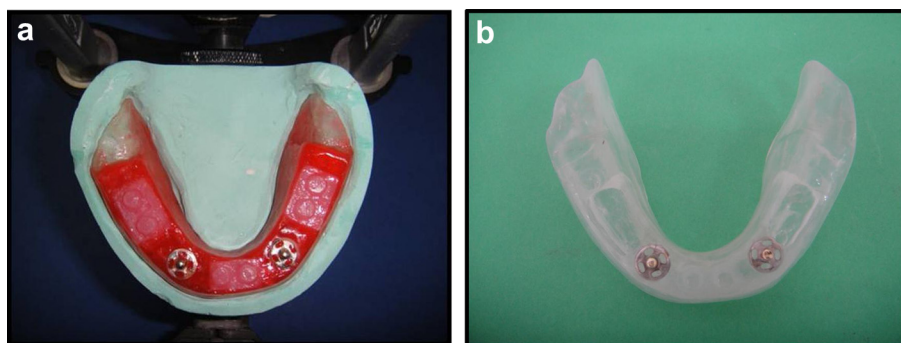


Fig. 1 – a: Lower denture base fabrication with Lego® blocks and precision buttons. b: Reservoir space cut out on both sides of clear acrylic base.

Case report

A 54 years old male reported with chief complaints of missing all upper and lower teeth and dry mouth. Medical history revealed that the patient had been operated for carcinoma base of tongue followed by radiation therapy 2 years back resulting in reduced saliva. Intra oral examination revealed edentulous maxillary and mandibular arches, dry tongue, and minimal saliva in oral cavity.

Primary impressions were made in high fusing impression compound (Pinnacle, DPI, India) and final impressions were made by using special trays in light body polysiloxane impression material (Aquasil, Denstply) since zinc oxide eugenol paste causes dryness of mucosa and burning sensation. Maxillomandibular relationships were recorded and models were articulated. A clear acrylic base was fabricated with press fit buttons and plastic (Lego®) blocks as shown in Fig. 1a kept parallel to each other on either side and at centre and waxed in such a way that only the extensions of the plastic blocks were above the wax rims on the mandibular cast. The height of the base was determined by measuring the total height of the mandibular bite rim (a) and subtracting the desired height of the teeth to be set plus 3 mm (b) added on to allow for sufficient acrylic under the teeth for strength [Fig. 2]. Shorter teeth were

used in the lower rim to allow a deeper area for the future placement of reservoirs.

The clear acrylic base was resealed on the duplicated mandibular cast and the assembly was duplicated using addition silicone material (Elite Double 32, Zhermack) and a stone cast was retrieved. In order to articulate this stone duplicated cast in the corresponding position to the clear acrylic base, a wax squash bite was made on the articulator, between the upper wax rim and the clear acrylic base. The clear acrylic base was then removed and the stone duplicated cast placed in its position and articulated. Teeth arrangement was done and tried in patient's mouth [Fig. 3].

The flasking was done in heat cure (Trevalon, Denstply) acrylic resin. After careful deflasking and polishing of upper and lower segment of the mandibular denture, the two sections should 'click' into place at this point. Polishing was done with the segments together to ensure a flush, smooth finish and no damage to the edges [Fig. 4].

The reservoirs were cut on both sides of the clear acrylic base while maintaining sufficient thickness of the denture walls for strength. A minimum thickness of 2 mm was maintained for the reservoir walls [Fig. 1b]. Once the reservoirs were placed, a 0.5 mm diameter acrylic bur was used to drill a drainage hole from the inferior aspect of the lingual flange of the denture into the reservoirs on both sides.

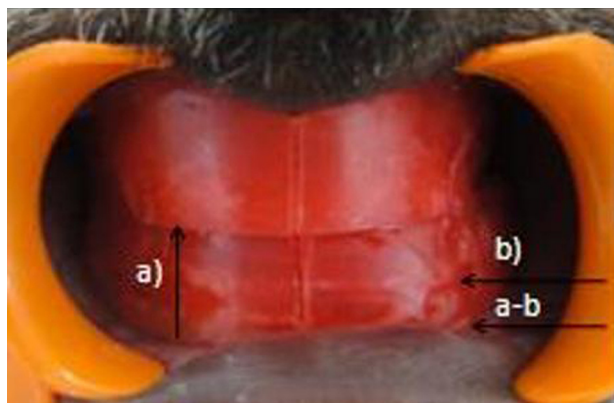


Fig. 2 – Showing the available space for denture base (a-b) and teeth arrangement.



Fig. 3 – Try in patient's mouth.

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