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## Case Report

### SUCTION APPARATUS IN COMPLETE DENTURE PROSTHESIS-A CASE REPORT

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#### ABSTRACT

Prosthetic rehabilitation is a complex process. Oral rehabilitation is a multidisciplinary approach. The contributions of various specialized persons are necessary to bring out a prosthesis into its fullness with respect to function and esthetics. Complete denture prosthesis is a common oral rehabilitation done in dental clinics. Retention and stability by preserving the aesthesia are common challenge for every prosthodontist. Retentive factors are improved by incorporating additional suction apparatus to the base of denture. However by doing so the local oral mucosa undergoes certain changes which may or may not be evident. Here we report such case where a conventional suction apparatus was used for quite period of time.

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#### INTRODUCTION

Dental science is a blend of multidisciplinary approach unlike any other systems. It takes its course through both mechanical and biomedical field. This unique pattern of collaboration of various fields are more evident in the complete denture prosthesis. Hence construction of a complete denture is a complex process and challenging. The goal of every prosthodontist is to construct a good retentive and stabilized dentures with preservation of the facial aesthetics. With the advent of modern mechanical aids in retention system, this has adopted advanced techniques. This has contributed a lot to the wellbeing and oral functionality thereby improving the quality of patient life. However, as with any system, this also has got some disadvantages by virtue. The common problems associated with the use of such systems are mucosal irritation. This irritation can further lead to inflammations, infections, mucosal changes leading to precancerous lesions. However these changes are not mandatory for every users. The changes are also dependent upon the systemic status of the patient whether the patient is having any systemic illness like diabetes, bronchial asthma, etc. Here we present such a case who used the conventional system of suction apparatus for retention.

#### Case

A patient aged 65 male visited to the department of oral medicine and radiology, Coorg Institute of Dental Sciences, Coorg, India with a chief complaint of loose artificial dentures

.The medical history revealed, that he was under medication for hypertension since 10 yrs. The dental history revealed a total extraction with replacement of dentures, since 8 yrs. Patient was moderately built and nourished with no other extra oral findings. The TMJ showed no much changes other than related to age onset arthritis.

On intraoral examination, an edentulous upper and lower alveolar ridges were noted. The dentures had undergone wear and tear, due to the usage along with the discolored base. Few artificial teeth in were broken, but denture base was not broken. The upper denture showed a black thick rubber like apparatus fixed on to the base with a rubber cup facing the palatal mucosa. This rubber cup was not damaged or had not undergone any wear and tear. The upper ridge had undergone resorption but the palatal mucosa showed a depression of size 4x4 cm with uniform shallow, round to oval, smooth border, with indentation towards the anterior 1/3<sup>rd</sup> of palatal. The edge of the depression was smooth with no changes either in colour or texture. There was no ulceration or discharge, and the surrounding mucosa was normal, but the mucosa in the depression showed mild darkening. The lower ridge was resorbed and the denture was loose fitting. There was no mucosal changes in either upper or lower ridge, palatal mucosa, or any where in oral mucosa. The patient was asymptomatic other than loosening of his denture.

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Figure 1 Hard Palate showing the area where the suction cup was placed



Figure 2 The Suction which was used.



Figure 3 The upper and lower denture.

## DISCUSSION

When the natural teeth are lost despite of all the efforts to save them, a re-establishment should be done in such a way so that the artificial prosthesis functions efficiently in harmony with the stomatognathic system<sup>1</sup>. Complete denture prosthesis is the fixed entity in dynamic oral environment.<sup>2</sup> Many geriatric patients suffer from ill-fitting dentures due to the bone loss and aging process which resulted in withdrawing such person from attending any social function due to esthetic compromise. The loosening of the dentures are attributed to constant using of dentures for many years<sup>3</sup>. This can be reasoned by the fact that atrophic changes undergone by the ridges, causing altered bony ridges and soft tissue contours. Along with this other contributing factors like, decreased or altered salivary flow and quality, soft- and hard-tissue lesions, neuromuscular changes<sup>4</sup>. The optimal results in preparing a complete dentures depend both on the functional achievement and psychological acceptance by the patient<sup>5</sup>. The increasing demand of patients coupled with incorporation of an innovative approach to have

better prognosis have led to the use such apparatus like retention cups<sup>6</sup>. This field is constantly undergoing changes with advancements by using various methods for improving the retention of the dentures<sup>3</sup>. This may be due to the fact that the conventional methods may not be sufficient to fulfill the five basic principles of complete dentures, like retention, stability, support, esthetics and preservation of the supporting soft tissue and hard tissue structures, thereby improving the functional outcome<sup>6</sup>. The denture suction device were mainly used to improve the fit, comfort, functional ability and to increase the confidence of the patient, thereby achieving the aim of prosthesis<sup>3</sup>. As the technology advanced there are different types of suction devices available. An ideal denture base should be rigid so that it can withstand the masticatory forces, and sufficiently flexible so that it adapts to the underlying mucosa thereby providing a favorable environment in the oral cavity<sup>2</sup>. So the basic concern about denture prosthesis is about its retention. This factor is a complex phenomenon involving many factors. To achieve this basic concern of retention, suction devices are used in maxillary and mandibular dentures. Hence they gained popularity in the previous years.<sup>5</sup> But the use of suction device in maxillary ridge causes hyperplasia related oral mucosal lesions, so they were discouraged. However the use of full dentures for prolonged period of time causes denture stomatitis. The use of suction cup can cause constant pressure in the palatal mucosa can lead to necrosis of the mucosa involved leading to damage of underlying bone.<sup>5,7</sup> When such a conventional system is used the tissue is under direct stress, thus giving chances of causing irritation. This has been explained in article written by R, Bassant *et al*, where he mentions about mucosal perforation and ulcerations in single suction cup users, like in this case<sup>8</sup>. However the retention feature has to improve in the denture, so as to provide a better functional ability to the denture. Few modern techniques used are liquid supported denture, wire loop supported suction cups, ultra suction system, multiple tiny acrylic made suction cups, are fewer methods<sup>9,3,2,8</sup>. All these system provide more stability or retention of the denture in the maxillary arch, but causes some sort of discomfort. But there are other problems or lesions seen in denture wearers. Other than problems caused only due to suction cups<sup>10</sup> In a study done by Jamal *et al* showed the commonest problems of these denture where there are of inflammatory changes in the mucosa. The common problems in this regard is the denture stomatitis caused by candida, which is an opportunistic organism. Other problems include, traumatic ulcer, epulis fissuratum, papillary hyperplasia, and irrational hyperplasia or white diffuse patches, hyperplastic candidiasis can be noted<sup>7,11,12,13</sup>. Our patient had no any uneasiness, hence he came for a new denture. The mucosa showed no changes clinically, and since he was asymptomatic patient he was willing for any biopsy procedures. He also did not give uneasiness for tolerance to hot and spicy food. Considering all these factors with no positive systemic history, patient was referred to prosthodontic department.

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