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Case Report

Lingual varicose vein associated with drug related xerostomia in a completely edentulous state

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ABSTRACT:
Anatomical aberrations in the oral cavity are generally uncommon, especially those related to the circulatory system. Varicose veins inside the oral cavity present multiple and different clinical pictures and resemble different other serious abnormalities; therefore, they need to be differentiated before starting any dental treatment procedure. Hyposalivation and xerostomia associated with diabetes and hypertension can be either a result of the disease itself or due to the medications that are required to control such disorders. Ageing, completely edentulous patients require a complete denture prosthesis to improve their quality of life and maintain better health through effective mastication. A reduction in salivary flow impairs both denture adaptation and its functioning capacity. This clinical report presents a rare case of an elderly male patient who was taking medication for his systemic disease [hypertension, diabetes]. Xerostomia was evident upon clinical examination and history. To compensate for the lack of saliva, the maxillary complete denture was modified by preparing a salivary reservoir in the region of the hard palate that was covered by a tightly sealed lid. Small holes within the lid allowed the patient to suck artificial saliva contained in the reservoir. The patient was highly satisfied with the denture design, although he desired that the salivary reservoir had more capacity. The capacity of the reservoir was limited by denture base thickness and the lack of space between the occlusal plane and residual alveolar ridge.
Key words: saliva, xerostomia, anti-hypertensive, anti-diabetic, complete denture prosthesis

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INTRODUCTION

Aberration in normal oral human anatomy can compromise maintaining oral health especially when natural teeth are present. Some of these may be innocuous in nature but may lead to serious consequences if improperly handled. One of the most uncommon conditions is presence of varicose vein in the oral cavity. The venous drainage system of the tongue occurs through ranine (profunda) vein which is closely associated to hypoglossal nerve.[1] To complete the drainage of the tongue the vein joins with dorsal loop of lingual vein and then together drains into internal jugular vein.[2] The human face contains large number of nerves, veins and arteries which needs protection, that is achieved by soft [skin, fat, muscles] and hard tissues, on either side of the face.[3] oral varicosities have been termed as normal variations due to the physiological process and are thus referred as a condition.[4] Phlebectasia linguae, lingual/sublingual varicosities and Caviar tongue are common other names for the condition.[5]Completely edentulous patients who wear a complete denture prosthesis that is made of acrylic resin, a hard material, has the potential to cause injury to the enlarged vein. In such cases, therefore, meticulous clinical attention should be given so that a well-fitting removable prosthesis will be clinically biocompatible with the condition. Completely edentulous patients do suffer from other medical or dental conditions, which might be either subclinical or the patient may be undergoing its treatment.[7] Saliva is a biological lubricant that not only maintains water balance but also plays a significant role in mastication, speech, and deglutition.[8,9] Xerostomia is a clinical condition

that may not necessarily be associated with hyposalivation since the diagnosis of hyposalivation is related to a salivary flow rate in the range of 0.1–0.7 ml/min under stimulation.[10]Xerostomia is a symptom that may be associated with underlying medical [Alzheimer, Sjogren syndrome, diabetes, anemia, hypertension, stroke] and dental diseases [caries, viral infection, candidiasis].[11-15]A complete absence of saliva is usually observed only due to the complete excision of the maxillary mucous glands, as seen in maxillectomy cases.[16]Ageing exaggerates the conditions that are compounded by systemic medications necessary to maintain existing diseases like diabetes and hypertension.[17]Drug-related xerostomia is mostly seen in elderly patients and has been reported to be the most common cause of xerostomia among dental patients.[18-20]

Geriatric, completely edentulous patients are generally among the highest consumers of dental health care facilities in terms of seeking complete denture prostheses after tooth loss. The complete denture prosthesis, in turn, depends on mechanical (undercuts) and physiological (saliva) factors for retaining the prosthesis. The complete denture prosthesis, in turn, depends on mechanical (undercuts) and physiological (saliva) factors for retaining the prosthesis. Undercuts may be favourable, in which case they are used, or unfavourable, where they are not used by the prosthesis.[22] Various means of salivary distribution using some sort of customised reservoir within the complete denture prosthesis have been reported in the literature.[23,24,25] While most of them have been associated with normal oral conditions, this case report presents a very rare case of a patient who had drug associated xerostomia and wanted a complete denture prosthesis that would have to serve in oral cavity with large varicosities. The article also discusses the various precautions needed to be taken in such cases.

CASE REPORT

An elderly male patient in his mid-seventies was duly referred to the department of substitutive dental sciences with a recommendation for a new complete denture prosthesis by the diagnostic department. The chief complaint of the patient was that he was unable to chew food, and his speech was not understood by his family members.The patient revealed in his medical history that he had been suffering from hypertension and diabetes for the last 3 and 5 years, respectively. Current medication includes an oral hypoglycemic drug [metformin] and an ACE inhibitor [enalapril].The patient's dental history revealed that he had lost his natural teeth as a result of dental caries and periodontal problems. The teeth were extracted over a period of 3 years, indicating that most of them were associated with periodontal mobility that could be related to a medical condition. Extraoral examination showed all parameters within normal limits except that the upper lip was relatively short in relation to the lower lip. Intraoral examination showed the presence of varicose veins on the tongue (dorsal surface) (Figure 1A) and buccal mucosa (Figure 1B). The anatomical landmarks related to the denture base surface were within normal limits, except the tissue on the mandibular residual alveolar ridge (RAR) was thin and non-resilient. Treatment options presented to the patient included an implant-supported fixed or removable complete denture (implant overdenture) using multiple implants, a conventional complete denture modified to include a salivary reservoir, or a conventional complete denture (no modification). The patient consented to a conventional complete denture with a reservoir. After making preliminary impressions with irreversible hydrocolloid (CA 37; Cavex, Haarlem, Holland), the area of the hard palate was delineated with a tissue marking pencil to serve as an outline for the extent of the salivary reservoir. Routine clinical and laboratory procedures necessary to fabricate a complete denture prosthesis were performed until the stage of the denture trial. At the stage of jaw relations, the possibility of including a salivary reservoir in the mandible was negated by the absence of space over the mandibular RAR. At the denture trial appointment, the wax in the maxillary trial denture was modified so as to form a low-volume salivary reservoir covered by a lid (Figure 1C). Once the trial was over (Figure 1D), the complete denture was processed, finished, and polished, while the lid for the salivary reservoir was made after processing. This included the adaptation of hard crown wax over the reservoir, which was then processed using self-cure clear acrylic denture base resin (Figure 1E). The lid of the reservoir was then perforated with a 0.3-mm round bur to make small holes for salivary release. The seal of the lid was checked and corrected for leaks, which was important to hold artificial saliva within the reservoir and release only upon sucking in the region. The patient was demonstrated how to use the denture and the salivary reservoir. The patient's occlusion was adjusted for comfort and balance. The patient was asked to follow up [1 day, 1 week, 1 month, and 12 months], and at each appointment, all his concerns were addressed along with the necessary adjustments to the complete denture prosthesis. At follow-ups, the patient was highly satisfied with the outcome of the treatment, except that he desired the reservoir to contain more liquid than what was available. The patient was educated about the limitations of such a modified prosthesis, which he understood with time.

Figure 1: (A) Varicose veins dispersed over the dorsal surface of the tongue; (B) Varicosities on the buccal mucosa; (C) Outline of salivary reservoir in the maxillary trial denture; (D) Denture trial; (E) Processed maxillary complete denture with a clear acrylic perforated lid.

DISCUSSION

A case of a completely edentulous male patient suffering from diabetes and hypertension and having symptoms of xerostomia with the physiological condition of varicose intraoral veins has been presented in this article. The oral varices, though normal variants of veins, should be differentiated at the time of diagnosis from other similar conditions that present a similar clinical picture. These include melanotic or purpuric lesions [hereditary hemorrhagic telangiectasia], lymphangioma, Kaposi sarcoma, and hemangioma].[26] Differentiation can be achieved with an accurate history and clinical picture, and in the case of telangiectasia, there is no colour change upon exerting pressure.[26]Although they have been linked to cardiopulmonary diseases, there are studies that have denied such associations.[27] Dentures fabricated in such cases should neither cause trauma to the area of concern nor have surfaces that will promote exploration by the tongue. In either case, injury to the varicose vein may induce bleeding, which is very difficult to control inside the oral cavity. [28] The patient was also suffering from xerostomia, which was associated with diabetes and hypertension-related medications. Diabetes affects normal salivary gland function, resulting in a reduction of salivary flow and impairing its composition. [29,30] Absence or decreased salivation thereby has the potential to change the biofilm formation on the denture surface as seen with other restorative materials.[31] Generally, two different conditions of xerostomia-associated diabetes have been reported: hyposalivation and dry mouth. Hyposalivation is pertinent only when saliva flow is stimulated, while dry mouth is xerostomia and is subjective in nature. Irrespective of the state of edentulousness, xerostomia can hamper periodontal function when natural teeth are present. In such cases, research indicates that mouthwash should be used to control mild gingivitis.[32] Xerostomia in this case was associated with the drug intake that the patient was taking to maintain blood pressure and blood sugar levels. Different drugs have been reported to decrease salivation, most commonly anticholinergics, anti-depressants, anti-histamines, and anti-hypertensive drugs. There are two chemically different types of saliva in the oral cavity: mucous and serous.[9] The mucous type contains mucin, which is more protective in nature, while the serous type contributes mainly to digestion.[9,10,12] Whenever mucous type of saliva undergoes compositional changes, it results in decreased resistance against exogenous influences [toxins, acids, bacterial metabolites].[33] Denture adaptation becomes either difficult or takes a long time in the absence or diminished flow of saliva. The friction between the mucosa and the denture surface also increases, resulting in mucosal irritation. Xerostomia occurs in both types of diabetes (types 1 and 2), being present in more than half of the patients. Salivary substitutes have been commercially available, unlike in the past, when one needed to formulate them in laboratories only. They are available in various forms, like swab sticks, lozenges, rinses, and sprays.[34] Studies have shown that patients wearing modified dentures (with a saliva reservoir) were more satisfied than those whose dentures did not have a reservoir.[29] Salivary reservoirs, when used with a maxillary denture, brought more satisfaction than those whose mandibular dentures had a salivary reservoir.

CONCLUSION

All lesions in the oral cavity, irrespective of their nature, should be first differentiated, and a proper diagnosis must be established before starting dental treatment. Maxillary complete dentures can be modified and customised to carry a salivary reservoir, which improves patients' ability to use them. Increasing the capacity of the reservoir can be easily done in cases where the occlusal plane is far away from the maxillary RAR since it will provide a larger bulk of the maxillary denture, which can be hollowed out. However, when the maxillary occlusal plane is close to the RAR, only a low-capacity reservoir can be incorporated.

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Conflict of interest: None

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