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Case Report

Neglect, Depression, Xerostomia – a link for using salivary reservoir in complete denture

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***ABSTRACT*:**
Patients existing compromised medical condition can be complicated by psychosocial states.In this case, a female patient suffering from systemic diabetes had a bout of depression that was related towards her neglect shown by her children. Such complex states of the human mind may not even allow a normal person to think of self care. Diabetes, depression and antidepressants all contribute to xerostomia, which compromises treatment objectives of a complete denture prosthesis. A low volume sliding type of reservoir was designed in the maxillary denture which could release artificial saliva/ water from micro holes upon suction. The treatment was synergised by referral to a psychiatrist who educated the offsprings of the patient, which improved the overall effective response of the patient to the denture treatment.

Keywords: elder maltreatment, diabetes, antisialagogue, salivary reservoir, complete denture.

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Introduction

Across times, a complete denture prosthesis has been innovated to adjust or accommodate certain patient related features. Patients with altered medical status undergo physiological and pathological changes in tissue and organs. One of the commonest clinical conditions that many patients tend to have is xerostomia or dryness of the mouth. Fortunately, complete denture prosthesis allows modifications and innovations in design, [2] techniques [3,4] and procedures to accommodate some form of mechanism to minimize its effects.[5] Alterations in conventional procedures and designs, lays more emphasis on patients' self-ability to maintain such prosthesis which are different from conventional prosthesis. Conventional self-maintenance of the complete denture prosthesis is not easy and requires a patient to have at least normal cognitive abilities if the prosthesis is expected to work efficiently. Depression is a mental state which is also a symptom of many underlying psychological problems which may be either pathological or psychological in nature. [6]

One of the less recognized/reported social condition associated with depression is the existence of patient neglect of their children. Among various types of maltreatment in elders, [7] the commonest form being neglect has been identified in patients who seek complete denture service. [8] The chances of an elderly suffering from elder neglect in a dental office are moderately high in low economic countries like India.

Existence of depression in a patient with metabolic disorder like diabetes can be termed as a complex condition. Diabetes mellitus affects millions worldwide [11] while india has been considered to have a large population suffering from diabetes in the near future.[12] Xerostomia is a common complication and may occur in severe form since the condition itself can lead to dryness of the mouth and the medications taken for treatment also resulting in xerostomia. [13] This article in the form of a case report has unique three different dimensions in the form of human neglect, diabetes mellitus and xerostomia and the combination of the three has been rarely reported.

Case report

An elderly female patient aged 62 years reported to the department of prosthodontics with chief complaint of difficulty in performing masticatory function with her old dentures. Personal and social history revealed that the patient was a housewife and had two sons both of whom were married. Patients spouse had expired five years back due to chronic illness. Investigation into the social relations with her daughter in laws revealed that the patient was considerably neglected by her children at home and had suffered bouts of depression in the recent past. Medical history revealed the patient was suffering from diabetes (type 2) since last three years and was continuously taking oral medications to keep the blood sugar level under control. The patient reported that her last time blood sugar level was checked seven months back. The patient also reported a history of psychiatric consultation regarding treatment of depression after the death of her spouse. Dental history showed that patient had been completely edentulous for last 2 years and was currently having a denture but was not able to use it except during eating. Patients main complain with existing complete dentures included denture halitosis, trauma and irritation while using which were mainly related to dryness of mouth. Difficulty in speech was also reported which was minimized if the patient drank water during speech. Extra oral examination revealed a long maxillary lip in relation to the mandibular lip **(Fig 1a)**. Intra oral examination showed a moderately build maxillary and mandibular residual alveolar ridges (RAR) **(Fig 1b, c).**

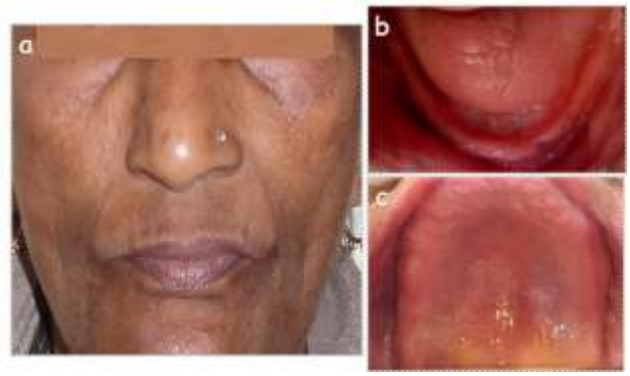

Figure 1: (a) Long maxillary lip (b) Mandibular and (c) Maxillary residual alveolar ridges

Areas of epithelial superficial lacerations were present in the maxillary posterior arch while a non scrapable white lesion was present on the left side of the hard palate **(Fig 1c).** A referral to the department of oral medicine disclosed that the lesion was a normal variant and prosthetic treatment could be initiated with minor restrictions in its use. Prosthetic options presented to the patient included mainly variants of complete denture prosthesis since implant supported prosthesis was relatively contraindicated. Among various variants of complete denture prosthesis were precision retained salivary reservoir or a custom designed salivary reservoir. Treatment plan also included a compulsory opinion from a psychiatrist to minimize the effects of neglect. Financial restrictions, paved the way for a custom designed salivary reservoir within the maxillary denture. Occlusal scheme planned for the complete denture was bilateral balanced occlusion. Routine clinical and laboratory procedures were used for the fabrication of complete dentures till the stage of denture trial. After the clinical denture trial was done, a low volume salivary reservoir was carved into the wax up of the maxillary trial denture. The area of wax removal was highlighted by using an old radiographic film **(Fig 2 a)** following which the maxillary denture was processed. On the processed maxillary denture a lid was fabricated using self cure denture base resin using lost wax technique. The lid was locked into the denture using a sliding mechanism **(Fig 2 b)**. The capacity of the reservoir was 25 ml of water which was verified using a 5 ml syringe. Holes of 1 mm diameter were made within the lid of the denture reservoir. The patient was demonstrated as to how the lid was to be removed and placed during cleaning. Excessive removal and insertion of the lid was prohibited since it would wear off the sliding mechanism and render denture useless. The patient was instructed about the extra care required in maintaining such dentures and both dentures were inserted after a clinical remount procedure **(Fig 2 c)**. The patient was put on a follow up and at a subsequent follow up, she exclaimed her satisfaction with the prosthesis **(Fig 2 d)**.

Figure 2: (a) Maxillary trial denture with a radiographic film placed to outline the extension of the reservoir (b) Processed denture with self cure acrylic lid (c) Maxillary and mandibular complete denture in place (d) Extra oral view of the patient with complete denture prosthesis.

Discussion

A completely edentulous patient who was not able to masticate with her existing dentures, with a history of diabetes, depression (existing elder neglect by her daughter in laws) has been presented in this case report. The feature of the report is the complex occurrences of all events in a single case. Xerostomia presented as a symptom which could be due to underlying disease and/or the result of antidepressant and antidiabetic drugs. [14] Denture wearing in such local conditions is not only difficult, but compromises the overall local health of the tissues as well as the basic and general principles of the denture functioning. The objectives of impression making

like retention and preservation of remaining alveolar tissues are both jeopardized by the absence of saliva. Oral functions with dentures are compromised and may impair eating, speaking as well as swallowing. [15] Improving the compliance of patients suffering from xerostomia to the complete dentures has been traditionally achieved by incorporating a salivary reservoir within a denture that releases artificial salivary substitute slowly over a period of time. While the maxillary dentures have been used as a low volume reservoir, the mandibular dentures have the capability of being a high volume reservoir.[16] We preferred the maxillary denture as a trial since we anticipated that incorporation of a salivary reservoir within the mandibular denture will increase the weight of the denture and since mandibular RAR were resorbed, the patient would have not been able to cope up with the change in the weight of the denture. The technique we used for fabricating the reservoir is similar to that mentioned in recent literature. [17,18]

Neglect of an individual has many dimensions and is discussed in details in the field of human psychology. For a dentist, it is important that he differentiates elder neglect from self neglect. Self neglect has been associated with the development of local oral conditions that are either benign or malignant natured. [19,20] Dentists can easily overcome or reduce the impact of neglect on his treatment. The basis of referring the patient for psychiatric consultation was done to solve this purpose. The psychiatrist had a two stage counselling with the sons of our patient. Their education led to a vast improvement in the patient's attitude and was visible in subsequent appointments of complete denture prosthesis.

Conclusion

Patients presenting to prosthodontic clinic may be having psychological influences that should be identified since they affect the outcome of the prosthetic rehabilitation. Prosthesis maintainence in such cases have different dimensions which render a patient ineffective in taking self care. The low volume salivary reservoir is a temporary solution and is aimed to only comfort the patient for a short period of time.

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