FLANGELESS COMPLETE DENTURE AND OBLITERATED LABIAL VESTIBULE SPACE

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ABSTRACT: Restoring labial fullness in a completely edentulous patient is a sensitive procedure. Correct communication between the dentist and the laboratory technician is essential to achieve what has been established clinically. There are clinical situations where the labial flange of the complete denture imparts poor facial aesthetics. Most of the cases usually are due to proclined maxillary anterior ridge. We present a unique case of an elderly female patient who, despite having a normal maxillary anterior ridge, could not tolerate labial denture flange in that region due to little labial vestibule space. The complete denture was modified to overcome the problem, and a gum fit denture was prescribed.

KEYWORDS complete denture, labial fullness, lip support, vestibule

Introduction

Esthetic needs are highly subjective, and they may vary from patient to patient and between patient and dentist.[1] However, there are some basic goals to be achieved when restoring facial aesthetics. One of those goals in complete denture service is to produce an adequate amount of labial fullness given by the denture flange. Denture teeth and denture flange can improve both labial fullness and lip support.[2,3] Understanding the nature of the normal support provided to the lips by the underlying natural teeth and alveolar bone is necessary to differentiate a physiologic from pathophysiologic support.[4,5] While restoring a completely edentulous patient with a complete denture prosthesis, it is essential for the dentist to differentiate between the two since the need of preprosthetic mouth preparation like surgery may or may not be indicated. It is also essential to differentiate certain systemic conditions or syndromes that incapacitate the individual from using his surrounding musculature to aid in holding the prosthesis.[6] When inadequate vestibule space exists within the labial vestibule, the decision to provide the denture flange or to omit it depends on many factors since overlooking those factors may result in poor or loss of retention of the denture thus rendering it useless. Most cases that lack adequate vestibule space are due to a prominent anterior part of the maxilla (premaxilla).

Figure 1: Labial flange removed from the trial denture base.

This article in the form of a case report presents a unique case where no evidence of premaxillary proclination existed, yet the labial vestibule space was considerably obliterated.
Case report

An elderly female patient reported to the department of prosthodontics for replacement of her missing teeth. Medical, social, drug and other related history were non-contributory. Extraoral examination revealed hypertonic and tight maxillary lip, besides increased lower third dimensions of the face. Intraoral examination revealed a moderately formed maxillary and mandibular residual alveolar ridges. Treatment options were decided after thorough biochemical and radiographic investigations and included an implant-supported fixed or complete removable denture or a conventional complete denture with a balanced occlusal scheme. The patient consented for conventional complete denture due to financial restraints. Routine clinical and laboratory procedures for complete denture fabrication were done till the stage of jaw relations when while developing the profile contour of the maxillary occlusal rims, it was observed that provision of denture flange in that area would result in increased lip fullness. A clinical decision was taken and conveyed to the patient that the maxillary denture would be without the labial flange which could indirectly affect the retention and stability of the denture (Fig 1). The maxillary labial flange was first reduced to paper-thin and was finally removed before making a face bow transfer. The occlusal rims were mounted on to a semi-adjustable articulator (Bart Bio Art A6 Plus, Brazil) using a meatal type of the facebow (Artex Rotofix, Girrbach, Pforzheim, Germany) (Fig 2). Teeth were arranged and the denture was tried in the patient's mouth (Fig 3). After taking the approval from the patient and her spouse, the complete denture was processed as a flangeless denture with a modified denture processing procedure (Fig 4). Dentures were delivered, post-care instructions were given and the patient was put on a follow-up protocol. Special instructions that pertained to the modified denture which would undermine some features of the denture prosthesis were stressed to the patient so that a negative outcome towards the denture was avoided.[7] these instructions were recalled at all follow-up appointments. The esthetic outcome of the flangeless denture was satisfactory to the patient.

Discussion

Although the technique of flangeless maxillary denture is a method to preview the esthetic results, certain situations demand the same design to be incorporated in the final denture. The flangeless dentures have different names like gum fit, ridge grip, wing denture.[8-10] The labial vestibule is a space that is present between the mucosa covering the inner side of the lip and the mucosa over the gums. The space increases as the resorption of the labial cortical plate of the alveolar bone take place. Most of the completely edentulous cases where space is obliterated or decreased are either due to proclaiming maxillary anterior residual alveolar ridge or due to recent extractions where the labial cortical plate has undergone minimum or no resorption. It may also result if after extraction, the compression of the socket is not done. The present case did not have any such features as was verified by history and clinical examination. However, two critical clinical findings during the extraoral examination can be related to lack of vestibule space. The presence of hypertonic lip which also had a stretched appearance and a prominent modiolus on either side of the lips. Together they possibly could lead to lack of vestibule space. After the teeth are lost, the lips fall inward due to unopposed contraction of the buccinator and orbicularis oris muscles.[11,12] Prominent
modiolus in such cases is also altered mainly medially inward and medially posteriorly. Together when combined with hypertonic maxillary lips, the vestibule space constantly shrinks unless the labial cortical plate does not undergo significant resorption. Since the patient was completely edentulous for the last four years and both primary and final impressions did not reveal any abnormality of labial cortical plate in terms of bulk or inclination, the most probable cause is the inward positioning of the maxillary lip.

Conclusion

Obliteration of labial vestibule impacts complete denture fabrication. Hypertonic maxillary lip and overactive modiolus can obliterate labial vestibule. During clinical examination of complete edentulous patients, these two parameters should be included in routine patient data collection.

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Conflict of interests

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