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Case Report

Flangeless denture: an innovative technique for management of labial undercut in completely edentulous patient: a case report

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ABSTRACT

Labial ridge undercut is more commonly seen in maxilla than mandible in completely edentulous individuals and it possess a great threat to the final esthetic outcome. Construction of a labial flange in conventional manner might compromise the facial support and muscles of facial expression, limit function, and compromise aesthetics for a better prognosis, an unconventional approach is needed for the construction of complete denture. This case report describes an innovative, economical, nonsurgical treatment option for fabrication of complete denture in a patient with a prominent labial undercut to enhance the facial aesthetics of the patient.

Keywords: Flangeless denture, Labial flange, Labial undercut

INTRODUCTION

Residual alveolar ridge form and shape may differ from severely resorbed to widely massive ridges in completely edentulous individual. Fabrication of complete denture proves to be challenging when the ideal biological consideration of both soft and hard tissues are not fulfilled. Most commonly conditions that affecting the esthetics and fabrication of complete denture is a labially proclined maxilla with presence of associated undercut. Due to differential resorption pattern of residual alveolar ridge extremely prominent ridge with labial undercut is more commonly seen in maxilla than in mandible.[1]

To eliminate the undesirable labial undercut of maxillary ridge, removal of the minimum amount of bone is necessary while avoiding the loss of bony cortical plate and thus it can improve the environment for the complete denture construction.[2] Pre-prosthetic surgery is one of the treatment option in such cases before advancing towards the construction of complete denture. Reconstructive pre-prosthetic surgery helps the prosthesis to reestablish work, guide maintenance, fulfill esthetics and save related remaining structures.[3,4]

Use of reconstructive surgical treatment is not always feasible owing to lack of patient motivation. One of the disadvantage of preprosthetic surgery that it may decrease the establishment for denture support. Systemic diseases, such as uncontrolled diabetes mellitus, hypertension, and heart ailments restrict the surgical rehabilitation of such completely edentulous ridges.[5]

Anterior teeth arrangement of complete denture becomes troublesome because of the minimal space availability and thus it brings about an unaesthetic swollen lip appearance. Nonsurgical treatment option include fabrication of a flangeless denture in order to restore the remaining ridges.[6]

The aim of this article is to present case reports, which explain a noninvasive manner of flangeless denture fabrication in patients having proclined anterior maxillary ridge and associated undercut.

CASE REPORT

A 61-year-old female patient reported to Department of Prosthodontics, Inderprastha Dental College and Hospital, Ghaziabad, India with the chief complaint of difficulty in eating and speaking due to teeth loss. On extra oral examination, it was found that the patient had a convex profile with an ovoid tapering face, class 2 profile, and a short lip length. Intraoral examination showed that the patient had a U-shaped arch with proclined anterior maxillary ridge and an accompanying severe labial undercut (Figure 1).

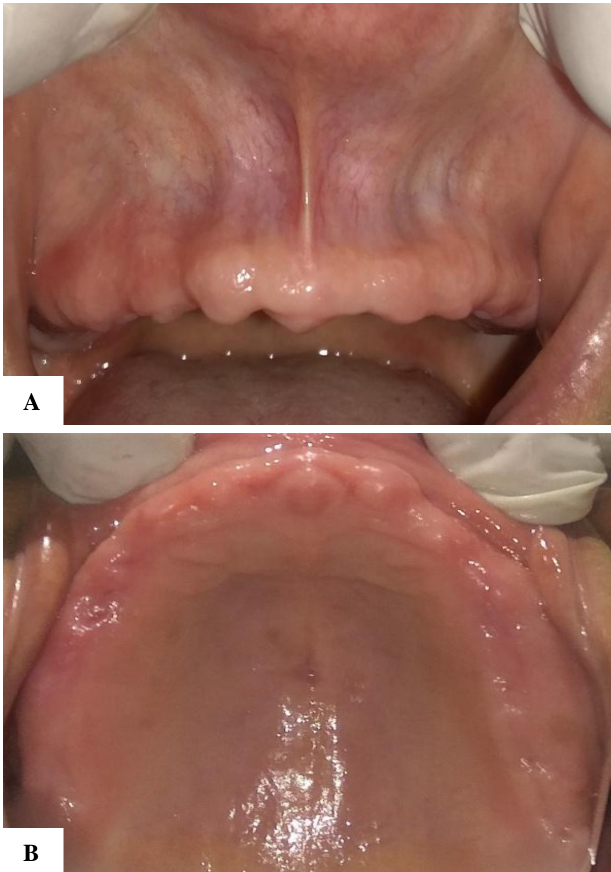

Figure 1 (A and B): Preoperative U shaped maxillary arch with labial undercut.

Technique

Impression compound was used to make the primary impression of maxillary and mandibular arch. Custom trays were fabricated on the primary cast. Border molding was done utilizing green stick compound and final wash impression was done by using light body polyvinyl siloxane. Once the master cast is ready jaw relation was done. Articulation was done and teeth setting were completed. After try in, during wax-up, the labial flange was completely removed from canine-to-canine leaving two acrylic spikes extending anteriorly from the distal side enabling in retention by engaging the undercut (Figure 2).

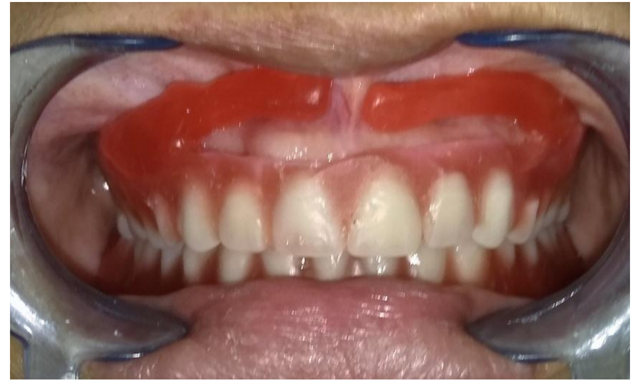

Figure 2: After removing the labial flange, try in procedure was performed.

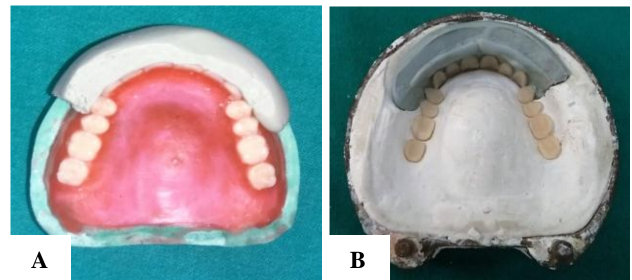

Figure 3 (A and B): Putty addition silicone impression material was placed over the labial flange area and dewaxing was performed.

After try in putty addition silicone impression material was placed over the labial flange area and dewaxing procedure was performed (Figure 3).

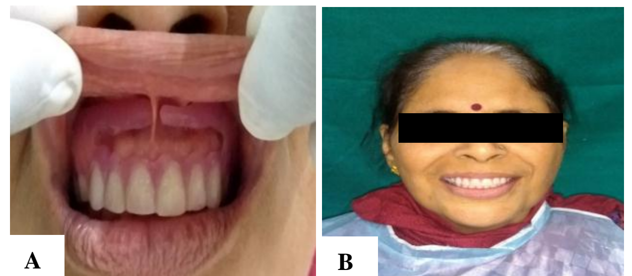

Figure 4 (A and B): Postoperative intra oral and extra oral view.

Packing and curing of heat cure acrylic resin was done in conventional manner. The final flangeless denture was polished and attempted in the patient's mouth for assessment (Figure 4). Occlusal corrections was done, the denture was delivered. The patient was reviewed following 24 hours, a week and one month for post-insertion visits. The patient was satisfied and had no critical dissensions.

DISCUSSION

Hard tissue undercuts cause the negative effect of the retention of the prosthesis, which are obtained

buccolingually and are most commonly available mechanical means of retention in completely edentulous patient. Flangeless denture is one of the non-surgical convention approaches to preserve the ridge.

Many authors have referred to this as “gum fit dentures” and “ridge grip esthetic prosthesis”.[7]

Some authors have mentioned this as "wing denture" in which the labial flange is segmented in the labial frenum area and two wings show up from either side, which provides adequate space for the labial frenum.[8,9]

Another conservative treatment option include use of soft liners that can easily adapt in the undercut area without causing trauma to underlying mucosa.[10]

CONCLUSION

This clinical report describes the fabrication of an economical, quick and easy method of fabrication of a flangeless denture for rehabilitation of proclined maxillary ridge with presence of labial undercut. Nonsurgical procedures can thus be utilized for the fabrication of the prosthesis as they are noninvasive, provide better acceptance, and ultimate satisfaction for the patient. The flangeless denture was convenient for the patient in terms of insertion, removal and function.

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