

A Maxillary Flangeless Complete Denture Prosthesis with Mandibular Removable Partial Denture: A Case Report

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ABSTRACT

Background: Prosthodontic rehabilitation of edentulous patients can be the most satisfying if treatment can restore patient's function with superior aesthetics. Complete denture fabrication is challenging when the intraoral conditions of the patient turn out to be less than ideal. Patients who undergo extraction of their proclined maxillary anteriors find it difficult to adjust to the conventional dentures when severe labial undercuts are present. Conventional complete denture fabrication in patients with labially inclined premaxilla and maxillary labial undercuts is complicated due to the need for surgical correction. Failure to undergo surgical intervention results in complete dentures with compromised aesthetics which could have long-term undesirable psychological bearing on edentulous patients. This case report presents a non-surgical procedure of treating and producing optimum aesthetics in an overly contoured maxillary ridge with severe labial undercut with the help of a flangeless denture.

Keywords: Flangeless prosthesis, Proclined premaxilla, Non-surgical, Tissue undercuts.

INTRODUCTION

It is inevitable for a prosthodontist to come across patients with different ridge contours in our daily routine clinical practices. Complete denture fabrication proves to be challenging when the ideal requirements of both hard and soft tissues are not fulfilled. One of the conditions affecting the denture fabrication and its esthetics is a labially proclined maxilla and associated undercut. Extremely prominent ridge is more commonly seen in maxilla than in mandible owing to differential resorption pattern.⁽¹⁾

Overall goals of reconstructive, pre-prosthetic surgery are to provide an environment for prosthesis that would restore function, be stable, aid retention, preserve associated structures, and

satisfy esthetics.⁽²⁾ Pre-prosthetic surgery can of course be a corrective option for such cases, though a major criterion of it includes patient consent. The patient's mental attitude and health might not always permit the thought of a surgery. Hence, in such clinical conditions, when the patient is not very keen in undergoing surgery for an over-contoured ridge, the prosthodontist can modify the art of a conventional denture, and restore it with help of a flangeless denture, keeping in mind all the basic requirements to be fulfilled by the prosthesis to achieve optimum result.⁽³⁾

Flangeless dentures have been referred to as "gum fit dentures"⁽⁴⁾ and "ridge grip esthetic prosthesis"⁽⁵⁾ in some articles. Another modification mentioned in the literature is wing denture in which the labial flange is sectioned in the labial frenum

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region and two wings appear from either side to allow space for the labial frenum.(6,7-10) This case report presents a non-surgical procedure of treating and producing optimum esthetics in an overly contoured maxillary ridge with severe labial undercut with the help of a flangeless denture.

CASE REPORT

A 46 year old female patient reported to the Department of Prosthodontics and Crown and Bridge, with the need of replacing her missing teeth. On extra oral examination, patient had an ovoid face with a convex profile, normal muscle tone and adequate lip length. Intraoral examination revealed a completely edentulous maxilla with a U-shaped arch form accompanying a severe labial undercut and partially edentulous mandible. (Fig.1&2).

The patient had been informed about the different treatment options such as alveoloplasty followed by the fabrication of complete denture for the maxillary arch and removable partial denture prosthesis for the mandibular arch, implant supported fixed prosthesis, Flexible prosthesis. But the patient did not agree for any surgical intervention and financial condition of the patient was also not sound so patient opted for first option. As conventional complete denture for the maxilla would have resulted in poor esthetics due to the bulge created by the labial flange of the maxillary denture for this patient. So a maxillary complete denture with unconventionally designed and intentionally modified labial flange was planned to fulfill the needs of the patient.

Primary impression of the maxillary arch was made with impression compound and alginate impression was made for mandibular arch(Fig 3&4). Maxillary impression was poured using dental plaster and mandibular impression poured in Type III dental stone. Mandibular cast will act as a master cast.

Special tray was fabricated for the maxillary arch with the help of tray material. Border molding for the maxillary arch was done using low fusing impression compound and the secondary impression was made with the light body impression material(Fig 5). The severe labial undercut posed a problem during the routine impression procedures and special care had to be taken regarding the path of insertion and removal.



Fig 1: Intraoral view showing prominent labial undercut.



Fig 2: Intraoral view of the mandibular arch.



Fig 3: Maxillary Impression made using impression compound.

Maxillary secondary impression was poured with dental stone to obtained maxillary master cast(Fig.6).

Denture bases were fabricated on both the casts followed by occlusal rims. The labial fullness appeared to be more even after the entire wax was merged with the denture base, which suggested the



Fig 4: Mandibular Impression made using alginate material.

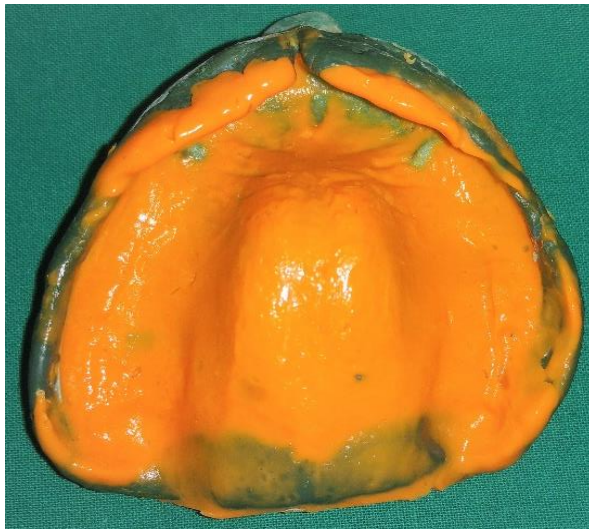


Fig 5: Maxillary secondary impression made using light body impression material.

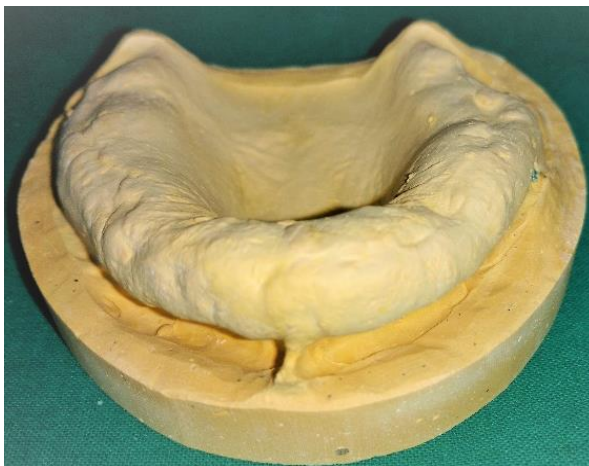


Fig 6: Maxillary Master Cast.



Fig 7: Jaw relation recorded.



Fig 8: Transferring Jaw relation record on three point articulator.



Fig 9: Try in of Prosthesis.

modification of labial flange for appropriate esthetics. 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. There was no denture base in the area of the labial prominence and the lips were in direct contact with the ridge



Fig 10: The flangeless denture in the maxillary arch.



Fig 11: Patient satisfied with the esthetics and function of the denture. A: Pre-insertion, B: post-insertion frontal view.



Fig 12: A- Pre operative profile view, B – Post operative profile view.

which reduced the labial fullness. The vertical and horizontal jaw relations were carried out and the casts were mounted on a three-point articulator (Fig.7&8).

After the teeth selection, anterior teeth arrangement was first done and anterior try-in was accomplished. Esthetics and phonetics of the patient were analysed at this step. After the patient was

satisfied with the esthetic outcome of the anterior teeth setting, the posterior try-in was done (Fig.9).

Now the processing of denture was carried out. The denture was polished and tried in the patient's mouth for evaluation of appropriate esthetics and occlusion (Fig 10,11 & 12).Occlusal corrections was carried out, instructions were given to the patient and prosthesis was delivered. The patient was recalled within a week for post insertion assessment. The patient was fascinated and satisfied with her flangeless maxillary denture and did not have any significant complaints.

DISCUSSION

Flangeless denture in this case report was suggested because of the prominent labial contour of the maxillary arch. If a conventional denture would have been fabricated, it would add to severe labial fullness and an unaesthetic appearance. The excessive bulky labial flange would have also interfered with phonetics. Modification of the labial flanges of the maxillary denture was contemplated, as the patients were reluctant for surgical correction of proclined maxilla with alveoloplasty. In addition, alveoloplasty should be performed only when there is a definite indication for the procedure as this procedure affects the quantity of denture foundation and therefore denture stability.(6) It may result in a narrowed crest in alveolar ridge area leading to a less desirable area of support and an area that may resorb more rapidly. Therefore, labial flange modification proved to be the most simple, effective, and non-invasive treatment alternative to the conventional technique of denture fabrication in these patients.

The main problem with flangeless denture was compromised retention of the denture because of the loss of labial seal. Apart from two acrylic spikes the other means of achieving the retention were also present in this case like , 1) Utilizing undercut near tuberosity regions on left side, 2) Large denture bearing area of patient helps in achieving better adhesive and cohesive forces which in-turn increases retentive properties of the denture 3) Thin saliva of the patient and close adaptation between denture base and tissue helps in increasing interfacial surface tension which increases retentive properties of the denture. Thus, the patient was

satisfied with both retentive and esthetic qualities of the denture.

CONCLUSION

Flangeless dentures provide an easy and simple alternative for patients who do not opt for surgical options for the correction of over-contoured ridges. They remain successful in providing satisfactory esthetics and better patient acceptance.

CONFLICT OF INTEREST

No potential conflict of interest relevant to this article was reported.

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