

BULBOUS RIDGE AND ITS RELEVANCE IN DENTURE ESTHETICS- CASE REPORT

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Abstract

Complete denture fabrication poses a challenge when the intraoral conditions of the patient are not ideal. In patients with excessive bulky ridges conventional flange extension causes compromised facial esthetics and often flanges of denture to be extended upto height of contour so as to be able to insert and remove but it reduces peripheral seal as well as retention. Labial ridge undercut is more commonly seen in maxilla than in mandible completely edentulous individuals and it poses a great threat to the final esthetic outcome. Labial flange is necessary in complete dentures to provide lip support, complete the contours of the denture and provide a border seal. Construction of the labial flange in conventional manner might compromise the facial support and muscles of facial expression, limit function and compromise esthetics, for a better prognosis an unconventional approach is needed for the construction of successful complete denture. Present article discusses about a simple, economical, conservative and non-surgical treatment for fabrication of denture in a patient with a bulky maxillary ridge without compromising facial esthetics and retention.

Key words: Denture esthetics, apron clasp, bulbous maxilla, flangeless denture

INTRODUCTION

Shape of denture flange plays a major role in determining the facial esthetics. Fabrication of complete denture proves to be challenging when the ideal biological consideration of both soft and hard tissues are not fulfilled.¹ 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.^{2,3}

Denture esthetics is often determined not only by size, shape, colour, form of teeth. It is also determined by thickness, contour extensions and colour of the denture base. In severely resorbed ridges the lip may appear collapsed and in bulky ridges lip may appear protrude hence suitable considerations in designing labial flange is to be considered. In such situation where pre-prosthetic surgeries are considered to modify bone contour and to provide an environment for prosthesis that would restore function, be stable and retentive, preserve associated structures and satisfy esthetics.⁴

On extraction of the buccally displaced maxillary anterior teeth the residual ridge is in a position to support the upper lip. If a denture base extension is placed in the pre-maxilla, two-thirds of the upper lip will be severely distorted from the base of the nose to the edge of the upper lip, specifically the wet-dry line.⁵ In this situation modified flange or flangeless denture is to be considered. Arrangement of artificial denture teeth becomes difficult due to lack of space and eventually results in an overtly unaesthetic swollen lip appearance. Pre-prosthetic surgery can be a corrective option

for such cases, though a major criterion for surgical execution includes patient consent, mental attitude and general health. Often in geriatric patients these factors might not always permit option of a surgery. Hence, in such clinical conditions the prosthodontist can modify the art of a conventional denture and restore it with help of a flange modifications, keeping in mind all the basic requirements to be full filled by the prosthesis to achieve optimum result.^{5,6,7}

This article describes successful rehabilitation of non-surgical treatment modality for proclined pre-maxilla in completely edentulous patient to achieve comprehensive rehabilitation with great regard to esthetics without compromising on retentive ability.

CASE REPORT

A 62 years old male patient reported with chief complaint of missing teeth in upper and lower arches and wants to get it replaced, on intra oral examination patient with completely edentulous and bulged maxillary arch (Fig.1) and edentulous mandibular arch with favourable ridges.



Fig.1 Bulbous maxilla
intraorally

On extra oral examination noticed bulky pre-maxillary region, medical history revealed patient to be diabetic since 5years for which he was on hypoglycemic agents, so treatment was planned keeping patient requirements and medical history in mind.

TREATMENT PLAN

Since patient was diabetic and reluctant for surgical treatment of maxillary arch also keeping age factor in mind option for pre prosthetic surgical treatment to reduce maxillary ridge alveoloplasty is terminated and planned for the prosthesis with flange design modification to provide which is pleasing esthetics. Primary impressions of maxillary and mandibular arches were made using impression compound, border moulding using low fusing impression compound and final impression using light body polyvinylsiloxane and poured with dental stone to obtain final cast, jaw relation

is recorded and teeth arrangement were carried out. (Fig.2)



Fig. 2 Bulbous maxilla lateral view

During waxup denture try in marked bulky elevation of the upper lip was noticed with complete labial flange extended maxillary denture. Substantial bulky lip noticed(Fig.3) hence decision was made to reduce labial flange by marking upto height of contour in the maxillary arch from canine to canine region satisfactory lip contour was noticed which was accepted by the patient appreciable.(Fig.4)



Fig 3 Bulging upper lip with full



Fig. 4 flangeless denture

Decrease in retention is noticed in flangeless denture, so to utilize the positive undercut, retentive ability of denture and to maintain esthetic 18 gauge wrought wire apron clasp been modified and adapted in the sulcus (Fig.5) attached to the denture base. Second try in was carried out to confirm lip contour and retentive ability of the denture.



Fig.5 Labial wrought wire with apron

Utilizing conventional compression moulding acrylization processed dentures were obtained trimming and polishing and final denture insertion done. Happy with appearance and retentive ability was noticed by patient and taught to insert and withdraw maxillary denture with altered labial tilt. Post denture insertion (Fig.6,7) instructions were given periodic follow-up appointments were scheduled.



Fig.6 Post insertion frontal view



Fig.7 Post insertion lateral view-

DISCUSSION

When basal seat ideal requirements of both hard and soft tissues are not fulfill. Diagnosis is a key for an ideal treatment plan. A good treatment plan paves the way for an excellent prosthesis. Most important criteria for better prognosis is to be upto patients desires by offering significance to their request. Residual ridge anatomy varies from patient to patient hard tissue undercuts when judiciously used provide positive effect on retention of prosthesis, which are most commonly seen in bucco-lingually or labially as mechanical means of retention in completely edentulous patients.⁸

Excessive bulky ridges often has a compromised facial esthetics. The thickness of the labial flange further compromises the labial fullness and result in an unesthetic maxillary denture. Pleasing facial aesthetics is as crucial as prosthodontic restoration of missing teeth.^{2,3} In order to avoid this problem been various management technique been tried to eliminate the undercut.. Surgical correction of maxilla with alveoloplasty can be done which was ruled out due to systemic condition of patient. Modifications of labial flanges in maxillary denture can be planned like denture without labial flange which may provide better esthetics but will

compromising on retention of denture. To enhance esthetic in such cases any modification of dentures would involve reduction of labial fullness by restraining denture base over bulged maxilla without compromising on denture retention.

Thinning of the denture flange will be inherent disadvantage of perforation and fracture during period of service. Flangeless denture or gum fitting denture or ridge grip esthetic denture in which entire flange is eliminated however leads to decrease in surface area of coverage and compromising in retentive ability.⁹ The denture with acrylic spikes or wings are used in labial undercut the main disadvantage of which may impringe the soft tissue and may lead to fracture.^{10,11} Stainless steel wire extension with acrylic tags have been reported for use to reduce the fracture of acrylic spikes and to incorporate flexibility and adaptability to labial undercut, however in this cantilever flexible stainless steel wire are prone for positional distortion which may cause soft tissue trauma or recurrent maintenance visit and also flexible terminal acrylic tags entrap food and debris.⁴

In the present case anterior portion from maxillary right canine to left canine portion

was removed to avoid over contouring and to improve esthetics a well adapted continuous labial arm apron clasp design with stainless steel clasp was given to obtain maximum undercut engaging gingivally without compromising labial fullness and providing best possible retention and strength to the denture.

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