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"Flangeless Complete Denture as an Alternative Prosthetic Design in Management of Labial Undercut: A Case Report"

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ABSTRACT
In patients who have become completely edentulous, labial ridge undercut is more frequently observed in the maxilla than the mandible. Therefore represents a serious risk to the final aesthetic result. An innovative technique is required for the fabrication of a complete denture since the conventional labial flange may limit function, impair aesthetics, and compromise the muscles of facial expression and facial support. In order to improve the patient's facial appearance, this case study details an innovative, cost-effective, nonsurgical treatment approach for fabricating a complete denture in a patient with a noticeable labial undercut.

Keywords*: Flangeless denture, Labial flange, Labial undercut*

I. INTRODUCTION:

The form and shape of residual alveolar ridges can vary from severely resorbed to enormous ridges in individuals who are fully edentulous. When the optimum biological consideration of both soft and hard tissues is not fulfilled, fabricating a full denture becomes difficult. A labially proclined maxilla with an associated undercut is the most common issue affecting the aesthetics and construction of a complete denture. The maxilla is prone than the mandible to have an exceptionally pronounced ridge with labial undercut due to the differential resorption pattern of the remnant alveolar ridge.[1]

The environment for the entire denture construction can be improved by removing the least amount of bone required to remove the undesired labial undercut of the maxillary ridge without losing the bony cortical pla te.[2]

One treatment option in such circumstances before moving forward with the making of a full denture is pre-prosthetic surgery. Reconstructive preprosthetic surgery aids in the prosthesis's restoration, maintenance guidance, aesthetic fulfilment, and preservation of associated residual structures.[3,4]

Lack of patient motivation makes the use of rehabilitative surgical treatment difficult in certain situations. Preprosthetic surgery may reduce the requirement for denture support, which is one of the disadvantages. Systemic conditions like cardiac problems, hypertension, and uncontrolled diabetes mellitus limit the surgical rehabilitation of such patient.[5]

Due to the limited amount of space available, the placement of the anterior teeth in a complete denture becomes problematic and results in an unpleasant expanding lip appearance. The fabrication of a flangeless denture is one nonsurgical therapy option for restoring the residual ridges.[6]

The purpose of this paper is to describe a noninvasive method of fabricating flangeless dentures for patients with a proclined anterior maxillary ridge and associated undercut.

II. Case Report

The main complaint of a 61-year-old female patient who came to the Department of Prosthodontics and Crown & Bridge, Iggdc, Jammu, India, was difficulties speaking and eating as a result of tooth loss. The patient had a class 1 profile, an oval tapering face, a convex profile, and adequate lip length, according to the results of the extraoral examination. In intraoral examination, the patient exhibited a U-shaped arch with a noticeable labial undercut and a proclined anterior maxillary ridge.(fig.1)

Figure-1 Preoperative maxillary arch with labial undercut.

Technique-

The maxillary and mandibular arch's primary impression was taken using impression compound. The primary cast was used to make custom trays. Green stick compound was used for border molding, and light body polyvinyl siloxane was used for the final wash impression. master cast is poured and then Jaw relations were obtained. Both articulation and tooth setting were finished. Two acrylic spikes extending anteriorly from the distal side were left behind after the labial flange was fully removed from canine-to-canine during wax-up following try-in, allowing for retention by engaging the undercut.(fig-2)

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

The labial flange area was sealed with putty addition silicone impression material and the dewaxing process was carried out (Figure 3).

Figure 3- : Putty addition silicone impression material was placed over the labial flange area.

Heat-cured acrylic resin was packed and cured using conventional methods. The completed flangeless denture, was trimmed and polished and then tried in the patient's mouth (Figure 4). The denture was given after occlusal adjustments. The Follow up was for 24-hour, week-long, and month-long post-insertion visits, the patient was evaluated. The patient had no significant disagreements and was satisfied.

Figure 4- Denture trimmed and polished and insertion in the patient mouth.

III. Discussion

The most popular mechanical retention method for patients who are fully edentulous is hard tissue undercuts, which are obtained buccolingually and have a detrimental influence on prosthesis retention. One of the traditional non-surgical methods for maintaining the ridge is a flangeless denture. Many authors have referred to this as "gum fit dentures" and "ridge grip esthetic prosthesis"[7] This has been referred to as a "wing denture" by some authors, where the labial flange is divided at the labial frenum region and two wings protrude from either side, giving the labial frenum sufficient space.[8,9] Using soft liners that can readily adapt in the undercut area without harming the underlying mucosa is another conservative treatment option.[10]

IV. Conclusion

This clinical report explains how to fabricate a flangeless denture for the rehabilitation of a proclined maxillary ridge with labial undercut in a quick, simple, and affordable manner.

Therefore, nonsurgical techniques can be used to fabricate the prosthesis since they are noninvasive, better patient acceptance, and result in greater patient satisfaction. The patient found that the flangeless denture was easy to use, remove, and install.

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