Prosthodontic Management of Maxillary Flabby Ridge - A Case Report

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ABSTRACT

Complete denture prosthesis replaces the lost teeth and associated structure of oral cavity. Success of complete denture depends upon various factors among which health of underlying denture bearing area is of utmost importance. Any departure from health of denture bearing area in the form of inflammation, ulceration, resorption, hyperplastic tissue to name a few will adversely affect the overall prognosis of denture. Flabby ridge is a common clinical scenario which must be addressed during denture fabrication. Efforts have been undertaken both surgically and conservatively to accommodate this flabby tissue. This case report describes one of the conservative methods wherein modification in impression making using conventional impression material was attempted.

Key words: Complete denture, Flabby ridge, Impression technique, Masticatory forces

INTRODUCTION

The primary goal of complete denture prosthodontics is to restore function, appearance, and comfort of the patient by delivering a stable prosthesis that replace the patient's lost teeth and surrounding bone. According to Jacobson and Krol, the three most important factors that affect the success of a full denture prosthesis are support, stability, and retention.[1]

The proper assessment of the balance between the positive and negative elements of the support areas, the suction areas, and the neutral ones in the edentulous prosthetic fields is essential for the restoration of the dento-maxillary system functions by complete denture prosthesis.[2] For sufficient soft tissue support at the denture, the alveolar ridge should ideally be covered by masticatory mucosa that is 1.5 to 2 mm thick.[3] The Glossary of Prosthodontic Terms defines flabby ridge as excessive movable tissue.[4] Flabby tissues have been categorized by Massad and Lobel according to their displaceability, as low displaceability, average clinically acceptable displaceability, and high displaceability.[5]

Management of highly displaceable tissues is the most challenging of the three types.[5]

Bone resorption, severe alveolar bone atrophy, dietary deficiencies, and inappropriate force were among the several etiological causes that Desjardin and Tolman postulated as being harmful to the formation of flabby ridges.[6] This case report describes management of flabby ridge in elderly female patient with special impression technique.

CASE REPORT

A 65-year-old female patient reported to the Department of Prosthodontics and Crown -

Conflict of Interest: None

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bridge, College of Dental surgery, BPKIHS, Dharan. She had difficulty in chewing with her present denture which she had been using for seven years. On examination, flabby tissue in the maxillary anterior region was found (Figure 1). The tissue was highly displaceable. A treatment plan was formulated to provide the patient with maxillary and mandibular conventional complete denture with modification in recording flabby tissue.

On the first appointment, primary impressions of the maxilla and mandible were made using alginate impression material and perforated stock trays. To record the flabby tissue at rest a special window impression technique was used for the final impression. Following this, the impressions were poured with dental paster (Dental plaster, Type II, Kalabhai). In the maxillary cast, the flabby ridge area was marked, followed by fabrication of a specialized custom tray. A single thickness modelling wax spacer (Modelling wax, MDM Y-Dent) was adapted except marked flabby tissue area of the cast. A closely fitting special tray was fabricated using pink colored auto-polymerizing resin (DPI RR Cold cure, The Bombay Burmah Trading Corporation). The extension of the tray was checked in the mouth and necessary adjustment was done. A window was prepared in special tray corresponding to the area of flabby tissue (Figure 2). Border molding was done in conventional way using green stick impression compound (DPI Pinnacle Tracing Sticks, The Bombay Burmah Trading Corporation). The wax spacer was removed and impression was made using zinc oxide eugenol paste (Impression paste, Coltene). Any excess paste in the flabby area was removed (Figure 3) and an impression of the displaceable mucosa was recorded by light body polyvinyl siloxane material (Elite HD +, Zhermack) over the flabby ridge area (Figure 4). The material was allowed to set and removed as a single impression (Figure 5). The master cast was made with type 3 dental stone (Kalstone, Kalabhai Karson Pvt Ltd.). For the mandibular arch, conventional border molding was done by open tray technique and impression was made using Zinc oxide eugenol impression paste (Impression Paste, SS White)

Master casts were poured from upper and lower impressions. Denture bases and occlusal rims were fabricated for jaw relation procedure. Vertical dimension and centric jaw relation was recorded. The teeth setting was done after articulation of the casts. Following try-in, a maxillary and mandibular conventional complete denture were delivered to the patient (Figure 6). That patient was comfortable with the denture and satisfied with the esthetics and function.

Figure 1: *Flabby anterior maxillary ridge*

Figure 2. *Custom tray with window over flabby tissue*

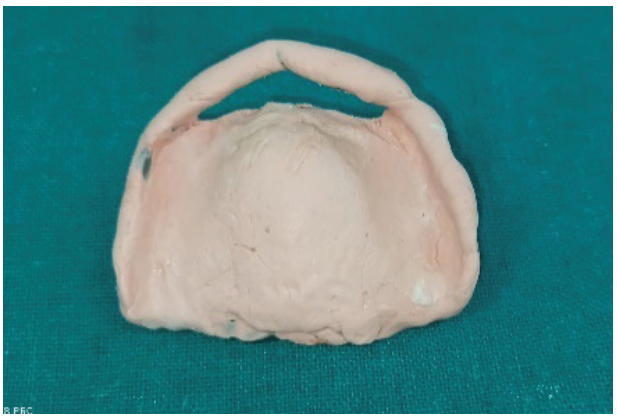

Figure 3. *Final impression with ZOE impression material*

Figure 4. *Light body impression material over flabby tissue*

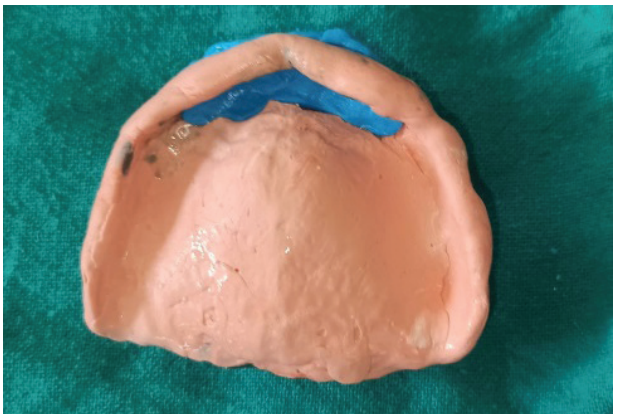

Figure 5. *Final impression along with ZOE and light body*

Figure 6. *Denture insertion with occlusion*

DISCUSSION

The presence of flabby tissues compromises retention, stability, and support for the complete denture[3]. The loss of the peripheral seal brought on by the tissues under the denture moving constantly compromises the retention of the denture.[1,7] If the flabby ridge exhibits more than 2 mm of displaceability under stress, the support for the entire set of dentures is compromised.[8]

Making a retentive maxillary acrylic denture for these individuals is difficult task, given the knowledge, material, and technique now available. Numerous methods have been explored to deal with flabby ridges.[9]

Commonly used techniques in such cases are:

1. Surgical method: Removal of flabby ridge through scalpel surgery or by injecting a sclerosing agent.[7]
2. Surgical ridge augmentation: Bone grafts are placed to augment the residual alveolar ridge.[10]
3. Implant-prosthetic management: Making of overdentures after bone augmentation and implant placement.[2]
4. Prosthetic methods such as modifications in impression techniques, balancing the occlusal load are frequently done to manage flabby tissues.[11]
5. CAD-CAM technology -With the development of computerized methods for creating complete dentures, the dentist can now virtually inspect the occlusal contacts, choose the type of occlusion, and determine the force distribution direction, eliminating the challenges associated with flabby mucosa.[12]

In the present case, the impression technique adopted for making of the final impression of the maxillary arch is window technique because the flabby ridge was highly displaceable and was present in the anterior region which made

the making impression in two stage easier, visibility of extent of flabby ridge was clear so that cutting of window was accurate to cover the flabby portion of ridge. The impression techniques employed for impression making of the maxillary arch in the present case report required dental materials that are readily available in contemporary dentistry. The techniques used for making impressions recorded the displaceable mucosa in an undistorted way. Also, no additional chair-side time or appointments were required for the procedure.

In this technique an opening called 'window' is made on the fabricated custom tray over the flabby area. Initially zinc oxide and eugenol is used on the custom tray and a mucocompressive impression is made. The impression is removed after setting. It is re-seated into the mouth after trimming. Light body polyvinyl siloxane impression material is then prepared and applied onto the flabby tissues through the window. The entire impression is removed carefully.

Patients with compromised residual alveolar ridges require extra consideration when receiving prosthodontic treatment. The stability, retention, and support of dentures are severely compromised by resorbed alveolar ridge and displaced fibrous tissue. The general health of the patient, the clinical state of the residual alveolar ridges, the clinician's competence level, and financial capacity all influence the choice of treatment approach. When sufficient bone height is available, surgical excision of flabby tissue is contemplated[13]; however, this frequently results in a decrease in the depth of the sulcus. Grafting for ridge augmentation is an invasive treatment that may result in graft material rejection.

CONCLUSION

Restoring resorbed residual alveolar ridges cannot be accomplished with a single method. A multidisciplinary strategy is necessary to attain the best possible outcome. It might not always be feasible to remove soft tissue and implant-supported prostheses. Then, a conservative strategy utilizing a modified impression method and the neutral zone concept offers the three essential components of a successful denture prosthesis: support, stability, and retention.

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