

## CASE REPORT

### *Prosthodontic Management of Flabby Ridges: A Case Report*

Pratyushman Hazarika<sup>1</sup>, Sujata Pandey<sup>1</sup>, Siddhi Tripathi<sup>2</sup>, Lisa Maria Carlo<sup>1</sup>, Dipti Nayak<sup>1</sup>

#### **ABSTRACT:**

*Flabby ridges compromise the support, retention and stability of complete denture. Masticatory forces can displace this mobile denture-bearing tissue, leading to altered denture positioning and loss of peripheral seal. When proper technique is not applied to record the displaceable tissue over the residual ridge, a rebounding action is bound to occur over the denture by the tissue underneath. The patient often complains of discomfort and loose dentures in such a situation. Conventional prosthodontics require specialized impression techniques for management of flabby ridges. The present case report illustrates modified impression techniques for management of flabby ridges for maxillary and mandibular arches.*

**Keywords: Complete denture, flabby ridge, hyperplastic tissue, impression.**

#### **INTRODUCTION**

The residual ridge of an edentulous patient is the foundation for fabrication of complete denture.<sup>1</sup> A stable denture is one that successfully resists the magnitude and direction of functional forces that tend to alter the positional relationship of the denture to its osseous support.<sup>2</sup>

A so-called 'fibrous' or 'flabby' ridge is a superficial area of mobile soft tissue affecting the maxillary or mandibular alveolar ridges.<sup>3</sup> It can develop when hyperplastic soft tissue replaces the alveolar bone and

is a common finding, particularly in the upper anterior region of long term denture wearers.<sup>3</sup> Microscopic features include the hyperplasia of the basal cell layer. The underlying connective tissue stroma consists of mature fibrous connective tissue mainly chronic inflammatory cells.<sup>4,5</sup> The reported prevalence for this condition also varies among investigators, but it has been observed in up to 24% of edentulous maxillae, 5% of edentulous mandible and in both jaws most frequently in the anterior region.<sup>5-7</sup>

Masticatory forces can displace this mobile denture-bearing tissue, leading to altered denture positioning and loss of peripheral seal.<sup>5</sup> Forces exerted during the act of impression making can result in distortion of the mobile tissue. When proper technique is not applied to record the displaceable tissue over the residual ridge, a rebounding action is bound to occur over the denture by the tissue beneath. All of this would finally result in utter dissatisfaction of the denture wearer due to denture instability while concurrently deteriorating the quality of the denture bearing tissue furthermore. The instability of the prosthesis will lead to a situation where both function and appearance can be heavily compromised.

1. Post Graduate Student.

2. Reader

Department of Prosthodontics and Crown & Bridge

**\*Correspondence Address:**

Dr. Pratyushman Hazarika (P.G. Student)  
Kothiwal Dental College and Research Centre,  
Mora Mustaqeem Moradabad.  
Email:pratyushman@gmail.com



**Figure 1:** Maxillary arch with flabby tissue in anterior region



**Figure 2:** Mandibular arch with flabby tissue in anterior region

In literature, many techniques<sup>1,3,5,7-9</sup> have been reported for management of flabby or hyperplastic tissue by various impression techniques in geriatric and medically debilitated completely edentulous patient. The present case report illustrates management of flabby ridge in maxillary and mandibular anterior ridge using a simplified and ingenious technique.

#### Case report

A 62 year old male patient reported to the Department of Prosthodontics and Crown & Bridge, Kothiwal Dental College and Research Centre, Moradabad, India, with a chief complaint of difficulty in chewing with the present denture, which he was wearing since last 12 years. Patient had been edentulous since last 13 years. The sequence of loss of teeth was mandibular posterior teeth first followed by maxillary anteriors,

maxillary posteriors and lastly the mandibular anteriors. On clinical examination it was found that both the maxillary and mandibular anterior residual ridges were flabby in nature (figure 1, 2). The denture was ill-fitting with worn out teeth. The treatment planned for the patient included fabrication of complete dentures for the maxillary and mandibular arches, with modified impression techniques for the hyperplastic ridge areas for both the arches.

Primary impressions for both the maxillary and mandibular denture bearing area were made with impression compound (Pinnacle, Bombay Burmah Trading Corporation Limited). The impressions were poured in Type II gypsum. The displaceable areas were identified on the cast.



**Figure 3:** Maxillary special tray



**Figure 4:** Maxillary border moulding and ZOE impression of firm tissues in first stage



**Figure 5:** Maxillary impression after second stage impression

For the maxillary arch, a close fitting auto-polymerizing acrylic resin (RR Cold cure, DPI, India) special tray with handle on the anterior part was constructed so that the flabby ridge area was left uncovered by the special tray (figure 3). Appropriate border moulding was then carried with low fusing impression compound (Pinnacle tracing sticks, DPI, India), followed by impression (figure 4) of the firm, supported mucosa recorded in zinc oxide-eugenol impression paste (DPI, India). An impression of the displaceable mucosa was then recorded by painting and applying a thin mix of impression plaster using a paint brush (figure 5).

For the mandibular arch, three uniform thickness of baseplate wax was placed as a spacer over the displaceable areas identified on the cast and one thickness baseplate wax over the remaining non-displaceable area. The special tray was fabricated in the usual manner with auto-polymerizing acrylic resin, leaving the spacer wax area over the displaceable tissues uncovered with acrylic resin, thus forming a tunnel of wax in between acrylic resin. Border moulding was done with low fusing impression compound and the master impression was then made in two stages (figure 6). In the first stage, the spacer wax over the non-displaceable areas was removed and impression was made with zinc oxide eugenol impression paste (figure 7). Following that, in the second stage, the spacer wax over the displaceable areas was removed carefully without damaging the first stage final impression (figure 8). With the special tray placed in the mouth, light body polyvinyl siloxane

impression material (GC, India) was injected with help of an intra-oral tip from one side of the tunnel, taking care that it evenly flowed to the opposite side (figure 9). Once set, dental plaster was placed over the light body silicone on the tunnel to reinforce the light body material. The impression was then removed from the mouth and inspected. The impression was re-inserted to ensure that it was retentive and did not rock when pressure was applied over the displaceable areas.



**Figure 6:** Mandibular special tray and border moulding



**Figure 7:** First stage of impression making with ZOE impression paste



**Figure 8:** Removal of spacer wax over the displaceable area



**Figure 9:** Mandibular final impression after second stage impression

Following this, denture was fabricated in the conventional manner and delivered. At subsequent post-insertion appointments, the patient reported satisfaction with the dentures with respect to comfort, function and esthetics.

#### Discussion

Making a good impression is the first step in fabrication of an acceptable denture. Compromised edentulous ridges are one of the many challenges encountered by the dentist in fabrication of a complete



**Figure 10:** Post-treatment photograph of patient.

denture. As age advances in an individual, and the long term wearing of ill dentures, bone resorption occurs,

which results in poor quality denture bearing area. This further progresses to conditions like excessively resorbed ridges and flabby tissues.

To counteract such conditions, various authors have enumerated different impression techniques in fabrication of a complete denture. As occurrence of flabby tissue is more common in maxillary ridge, a lot has been focused on impression techniques for the management in fabrication of complete denture. However, little has been discussed in literature for impression making in flabby mandibular ridges. The three main approaches to the management of the flabby ridge are surgical removal of fibrous tissue prior to conventional prosthodontics, implant retained fixed or removable prosthesis, and, conventional prosthodontics without surgical intervention.<sup>3</sup>

The advantage of surgical removal of fibrous tissue is that a firm denture-bearing area is produced, which enhances the stability of the prosthesis, but, the health of the patient must be taken into consideration.<sup>3</sup> Surgical removal is contraindicated in circumstances where little or no alveolar bone remains.<sup>3</sup> The other disadvantages with this procedure remains that of the increased the bulk and weight of the denture base material for replacement of the removed tissue, and the adversely affected retention due to significant loss of the sulcus depth which is important in aiding border seal.<sup>3</sup>

Implant retained fixed or removable prosthesis may be an attractive alternative due to the enhanced stability, retention and oral function.<sup>3</sup> But, this modality too comes with the limitations of finance and recurrent cost of maintenance. Other factors that must be considered include: surgery, discomfort and inconvenience, general health of the patient and risk of surgical complications or implant failure. Also, implants in the maxilla has a success rate of 78.7% and are not as successful as in the mandible.<sup>3</sup>

Conventional prosthodontics is preferred over surgical removal since, although, flabby ridge may provide substandard retention for the denture base, it may be more desirable than no ridge at all.<sup>3,7</sup> When adequate

care is not taken for fabrication of complete denture for a flabby ridge the patient would usually complain of poor comfort and a “loose” denture.

In the present case, the impression technique adopted for making of the final impression of the maxillary arch was first described by Osborne in 1964 for use in the mandible.<sup>3</sup> Crawford and Walmsley had described it as two part impression technique: mucostatic and mucodisplacive combination.<sup>3</sup> The present technique ensured that pressure exerted by the tray did not cause distortion of the mobile tissues. The rim handle design had the benefit of aiding prevention of unset impression material falling to the back of the mouth when the patient was supine. The window design provided appropriate border correction and allowed checking around the entire sulcus before the second stage of the impression was completed.

Both impression plaster and light bodied silicone have been suggested for recording the displaceable mucosa. In the present case, impression plaster was considered as an acceptable material since it is an excellent mucostatic impression material and because of absence of any severe undercut in the maxillary arch. Plaster of Paris was first used as an impression material in 1844 by Westcott, Dwinelle and Dunning.<sup>8</sup> Following that, in the later years, it was used for secondary wash impression within the preliminary impression.<sup>8</sup> Light bodied polyvinyl siloxane has been suggested for preferential use in cases involving undercut.<sup>3</sup>

For the mandibular ridge, special tray was fabricated according to the method suggested by Ali, Chaturvedi and Shah.<sup>9</sup> The tunnel over the displaceable area allowed recording of the displaceable mucosa without any distortion. This area was recorded using light body polyvinyl siloxane impression material. This impression material is effortlessly dispensable intraorally with the use of easily available intraoral tips. To reinforce the light body material from distortion during handling and pouring of the cast, a dab of dental plaster was placed over the light body impression material on the tunnel. Syringing of impression plaster in the tunnel created in the special

tray for recording of the displaceable tissue was suggested earlier.<sup>10</sup> However, as it is brittle in nature, its applicability to be used in a syringe was dubious.

The impression techniques employed for impression making of both the maxillary and mandibular arches 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.

#### **Conclusion:**

Compromised ridges are a major challenge to a prosthodontist in virtue of fabrication of a complete denture. Although a plethora of techniques and approaches are available for management of these ridges, the decision of the clinician should justify the requisites of the denture wearer. The impression techniques used in the present case report are simple to use, convenient for the clinician, well-tolerated by the patient, economical and less time consuming.

#### **REFERENCES**

1. Dabas N, Dabas A, Yadav H. Management of the mandibular compromised ridge: a literature review and case report. *World J Dent* 2013;4(1):67-71.
2. Devan MM. Basic principles in impression making. *J Prosthet Dent* 1952;2:26-35.
3. Crawford RW, Walmsley AD. A review of prosthodontics management of fibrous ridges. *Br Dent J* 2005;199:715-9.
4. Kelly E. Changes caused by a mandibular removable partial denture opposing a maxillary complete denture. *J Prosthet Dent* 1972;27:140-50.
5. Chaturvedi M, Chaturvedi S, Ahmad N, Bashir T. Revisiting hypermobile mucosa in edentulous foundation-pathology and management. *IOSR J Dent Med Sci* 2013;4(6): 30-5.
6. Xie Q, Narhi TO, Nevalainen JM, Wolf J, Ainamo A. Oral status and prosthetic factors related to

residual ridge resorption in elderly subjects. *Acta Odontol Scand* 1997;55:306-13.

7. Lynch CD, Allen PF. Management of the flabby ridge: using contemporary materials to solve an old problem. *Br Dent J* 2006;200:258-61.
8. Bitragunta RP, Purna SCR, Mallikarjun M. Systematic review of complete denture impression techniques. *Indian J Dent Adv* 2011;3(4):673-80
9. Ali M, Chaturvedi S, Shah M. Innovative tunnel technique for mandibular flabby ridge. *Int J Dent Clinics* 2012;4(2):74-6.