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Flabby Alveolar Ridges: A Modified Technique to Treat this Clinical Challenge.

Nidhi Kathuria*, Rahul Prasad* and Shreenivas Vasant Bhide*

Abstract - *Flabby tissues are common clinical finding which poses no problem of pain and discomfort but adversely affect the support, retention and stability of complete dentures. This paper presents a nonsurgical alternative to such cases focusing on a modified impression technique to record the flabby tissue in its undisplaced form. The custom tray was made in two parts, the first part of which contains a "lattice-work", which strengthens the tray followed by a second tray, which adequately supports the final impression. A standard neutral zone technique was additionally employed for the mandibular ridge as it was severely resorbed.*

KEY WORDS: Extensive flabby alveolar ridge, modified custom tray design, Neutral zone.

INTRODUCTION

Flabby ridges are excessive tissue proliferation commonly seen in the maxillary and mandibular ridges, usually caused as a response to chronic irritation[1]. There may be many causes for the development of flabby ridges, namely, unplanned or uncontrolled dental extractions[2], constant unbalanced forces under ill-fitting dentures[3] and continued traumatic bone resorption in cases with increased masticatory stresses[4]. Flabby tissue in the anterior maxilla is a feature of the so called "combination syndrome", which is seen when maxillary complete dentures oppose the natural mandibular anterior teeth[2,5]. Flabby ridges pose significant problems for the provision of stable and retentive dental prosthesis for the affected patients[5].

The most frequent problem arises during the act of conventional impression making, when the flabby tissue is recorded in a compressed state, it will tend to recoil and dislodge the overlying prosthesis. The impression technique associated with such flabby ridges is therefore important and must record the denture bearing area without displacing the flabby tissues.

The purpose of this case report is to present a modified impression technique that can be used to optimize the treatment of edentulous patients with extensive flabby ridges and at the same time be conservative and makes use of impression materials that are routinely available in practice.

Case Report

A 57 year old edentulous male was referred to the Department of Prosthodontics, Bharati Vidyapeeth Dental College, Pune, India for prosthodontic rehabilitation. The patient reported that he had been wearing a complete denture for 15 years. He was wearing his third set of dentures and complained that they were loose fitting. The intraoral examination revealed the presence of extensive anterior and posterior flabby ridges. Since the patient wished to avoid surgical procedures, it was decided that a complete denture would be given to the patient, paying special attention to the impression technique for the flabby ridges.

Technique

The step by step technique is described as follows:

1. The Maxillary and mandibular preliminary impressions were made in perforated stock metal trays using irreversible hydrocolloid and primary casts were obtained (Figure 1).
2. The maxillary and mandibular casts were surveyed for soft tissue undercuts and were blocked, using modelling wax.
3. A wax spacer (0.6mm) thick was adapted on the basal seat area of the primary cast. An extra sheet of spacer wax was adapted across the inter canine region, as it was more flabby than the other regions. This was followed by making of the custom tray, using chemically activated acrylic resin tray material. Most of the basal surface of the first tray was removed, except for a "lattice-work", which provided strength to the tray (Figure 2).
4. Using an acrylic trimmer, keys were placed on the first trays in at least three places. The keys provided a guide for correctly orienting the second tray on the first tray, during the final impression making process.
5. The lattice framework of the first tray was covered with single thickness of spacer wax, ensuring that the "keyed" positions were kept free of the spacer wax (Figure 3).
6. The second tray was adapted onto the first tray, ensuring that it was 2 mm short of it and fitted well into the keys (Figure 3).

* MDS

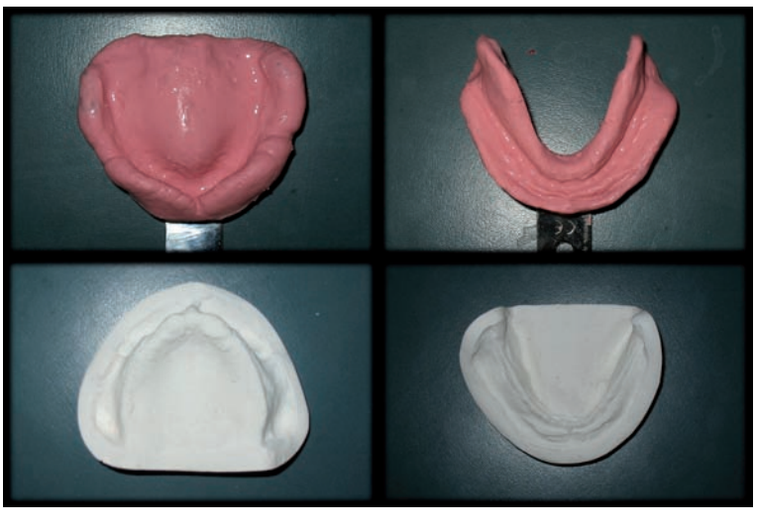

Figure 1. *Maxillary and mandibular primary impression and primary Casts.*

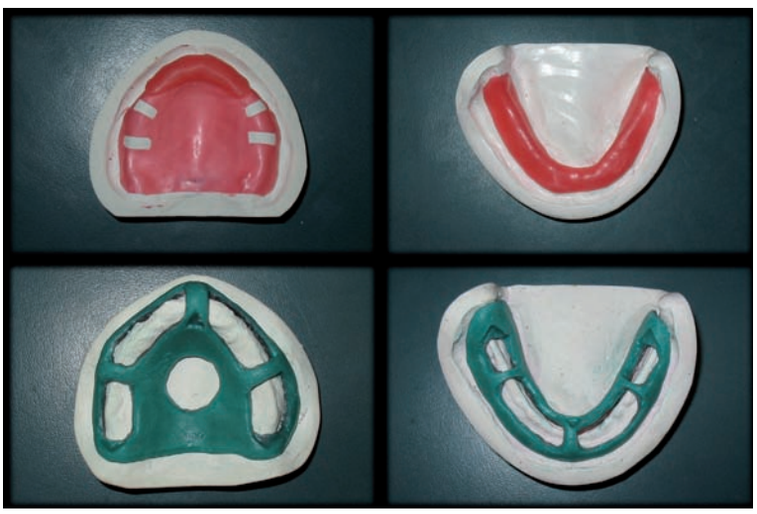

Figure 2. *Fabrication of maxillary and mandibular tray with lattice framework and keys.*

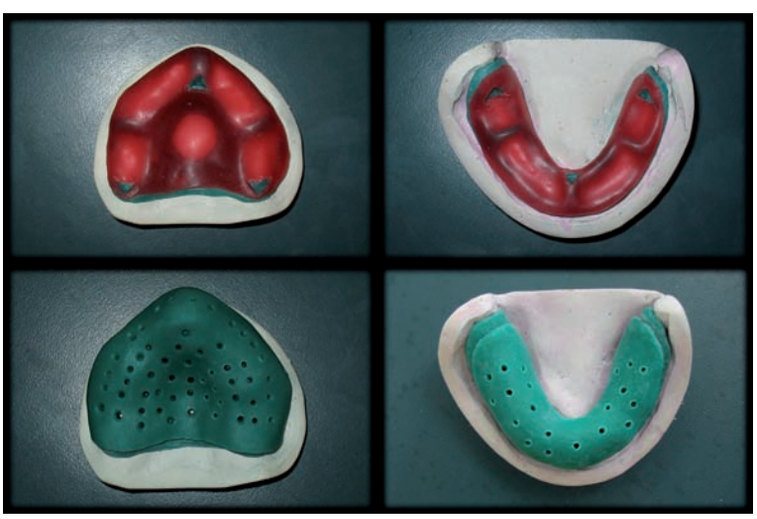

Figure 3. *Adaptation of spacer wax on first tray and fabrication of second tray.*

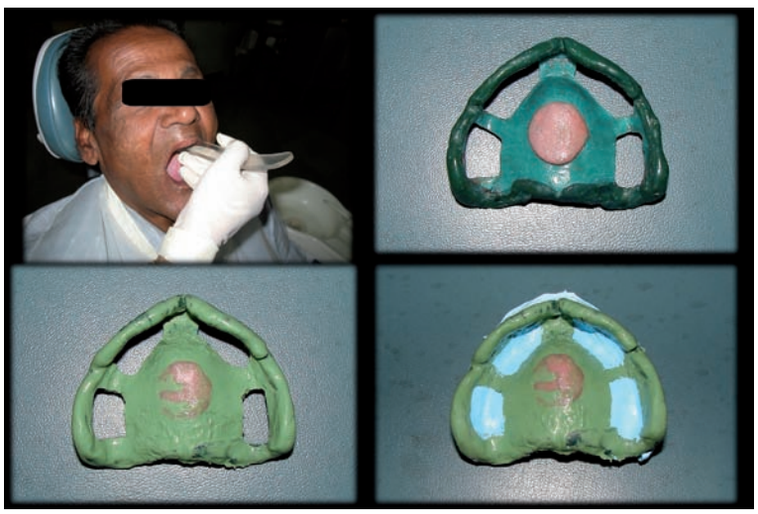

Figure 4. *Fabrication of palatal tissue stop and two step impression procedure.*

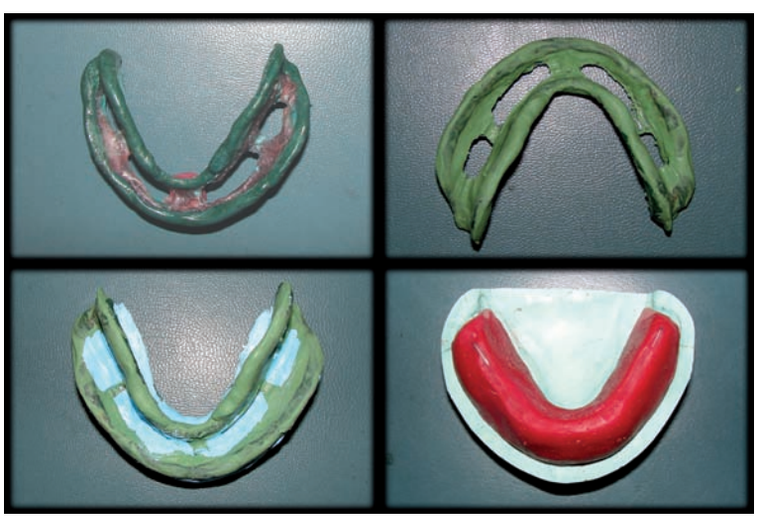

Figure 5. *Mandibular border molded custom tray and final impression followed by neutral zone record.*

7. Numerous perforations were made in the second tray with a No. 8 round bur to provide escape holes to reduce excessive pressure during placement of the impression material loaded tray and also to aid in mechanical retention (Figure 3).

8. In order to ensure stability and equalization of pressure during impression making, a tissue stop was placed in the maxillary custom tray in the region of the palatal vault. The central portion of the maxillary custom tray was removed and a circular opening was created. Petroleum jelly was applied on the palatal mucosa to prevent thermal injury. The first tray was seated with minimum pressure and autopolymerizing resin was place on a tongue depressor and was gently placed in the opening of the tray. The set resin formed a tissue stop on the firm and stable palate (Figure 4).

9. Maxillary border molding was undertaken with greenstick compound, using the palatal resin stop to ensure the stability of the tray. The spacer wax was removed and final impression was made using light body elastomeric impression material. After setting, the tray was removed and excess impression material was trimmed from the open lattice regions (Figure 4).

10. The impression of the flabby ridge was made with eugenol free impression paste. The impression paste was injected over the flabby ridge surface using a syringe and the preloaded second tray was gently vibrated into position until keyed parts of the tray were in contact. Two trays were held together until the impression material set, followed by which the impression was removed as a single unit (Figure 4).

11. The mandibular custom trays were fabricated in a manner similar to the maxillary custom trays and the final impression was made as described above (Figure 5).

12. Along with the presence of flabby tissue, the mandibular ridge was extremely resorbed and therefore a standard neutral zone technique was employed[9]. Tentative jaw relations were recorded and face-bow transfer was undertaken on a semi-adjustable articulator followed by teeth arrangement with balanced occlusion scheme.

13. Try-in was undertaken and dentures were cured and denture placement appointment was completed.

DISCUSSION

A relatively common finding in most edentulous cases is presence of a ridge that is displaceable and hence called as 'flabby ridge'. It is often seen in cases where the natural lower anterior teeth have occluded against a maxillary complete denture without adequate restoration of the posterior occlusion[10]. Consequently, the excessive anterior load causes bony resorption which is followed by forward movement of the anterior mucosa, causing flabby tissue development. In many cases the flabby tissue may extend to the posterior ridges and may even involve the tuberosities[10]. Surgical excision of the flabby tissue may be the most viable option, however accompanying medical conditions or medical treatment of such elderly patients may contraindicate any surgical procedure[2]. This makes the impression procedure of such cases imperative and technique sensitive. The impression must not only include the denture bearing area but also ensure that the flabby tissues are captured in an undisplaced form.

Keeping the above facts in mind, a modified impression tray design and corresponding technique has been described which is mainly indicated when alveolar ridge is extremely flabby and involves both anterior and posterior residual alveolar ridges.

The technique used involves a two part custom tray designed with a lattice (first tray) to strengthen the tray and also providing sufficient support (second tray) for the impression, so as not to damage or distort it during removal.

The impression technique also uses materials with which dental practitioners are already familiar with and are dimensionally stable. Injecting eugenol free impression material over the flabby ridges with a syringe and the open lattice design of the tray ensures that the flabby tissues are not displaced while the perforated second tray further ensures a pressure free, well supported final impression.

However, this technique does require expertise in custom tray fabrication and accurately fitting trays for error free impressions.

CONCLUSION

This paper describes an impression technique for management of denture bearing areas with extensive flabby tissues. The materials used are readily available and used in contemporary general dental practice. The two part custom tray design, when fabricated accurately, can provide the practitioner with an undisplaced flabby ridge impression that can successfully be used in managing such cases, without surgical intervention.

MANUFACTURERS' DETAILS

Cavex outline eugenol free impression paste distributed by Cavex Holland BV, Netherland; Imprint alginate impression material (DPI, India), Heat activated acrylic resin distributed by (DPI, India); Express VPS light body by 3M ESPE; Kaldent Dental plaster and Kalstone (Kalabhai, India); Chemically activated acrylic resin tray material (MP Sai Enterprise Mumbai, India), Beading wax, Boxing wax, Modelling wax and Spacer wax (Hindustan, India)

ADDRESS FOR CORRESPONDENCE

Dr. Nidhi Kathuria, Senior Lecturer, Dept. of Prosthodontics, Address: Dept. of Prosthodontics, P.D.M Dental College & Research Institute, Bahadurgarh, Dist. Jhajjar, Haryana-India. E-mail id: nidhi_niki2006@yahoo.com

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