

Original Research

Impression technique for management of flabby ridge patients-An Overview

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ABSTRACT:

Impression making is the most basic and important requirement for a functionally and aesthetically successful denture. From a clinical perspective fabrication of a retentive maxillary denture for patients with fibrous maxillary ridge can be extremely challenging. A modified impression technique is required in a flabby ridge to record the tissues in an undistorted position. The various techniques described as well as the different impression materials used help in providing an accurately fitting as well as satisfactorily functioning dentures for the patient with a flabby ridge. Beside using conventional techniques for fabrication of prosthesis, surgical technique that includes both surgical removal of flabby tissue or placement of dental implants for fabrication of implant retained denture can be used. This review article gives an in-depth knowledge about various technique used in fabrication of denture in flabby ridge cases.

Keywords: -Fibrous maxillary ridge, Modified impression technique, Surgical removal of flabby tissue, Implant retained denture.

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INTRODUCTION

The restoration of the dento-maxillary system functions by total prostheses depends on the correct evaluation of the balance between the positive and negative elements of the support areas, the suction areas and the neutral ones of the totally edentulous prosthetic fields. Resorption and atrophy of the alveolar ridge are also essential factors that contribute to compromising the retention and stability of mobile prostheses. The presence of the balance mucosa can be easily overlooked in the conditions of prosthetic fields with a negative prosthetic balance. Denture retention can be jeopardized if one of these factors is compromised. Patients wearing mobile dentures require special attention due to compromised oral anatomy, reduced adaptive capacity, systemic disorders and their corresponding medication, a combination of factors that significantly diminish

patients' ability to successfully wear mobile prostheses.

A fibrous or flabby ridge is a superficial area of mobile soft tissue affecting maxillary or mandibular alveolar ridges. It develops when hyperplastic soft tissue replaces the alveolar bone and is a common finding particularly in the upper anterior region of long-term denture wearers. A flabby ridge becomes displaceable due to fibrous tissue deposition. It is developed when hyperplastic soft tissue replaces the alveolar bone. Masticatory forces can displace this mobile denture-bearing tissue leading to loss of peripheral seal.¹ Impression making of flabby ridge results in the displacement of fibrous tissue which later on recoils to its original position and dislodges the denture. Forces exerted during impression making can result in distortion of the mobile tissue.² It affects both maxillary and mandibular alveolar ridge but it is most commonly seen in the maxillary anterior ridge

especially when there are remaining anterior mandible teeth or when associated with removable partial dentures in case of edentulous spaces representing a consequence of ridge overload and occlusal imbalances.³ It is usually correlated with characters of combination syndrome, as stated by Kelly E. The flabby ridge can be determined by using a ball burnisher which blanches the tissue when pressure is applied. In 1972, Kelly and his colleagues first described 'combination syndrome' caused by the presence of opposing natural teeth to an edentulous area. His observations included alveolar bone resorption in the anterior maxilla, enlargement of the tuberosities and bone resorption underneath the mandibular denture bases⁴. The present article discusses about various modalities in the treatment of flabby ridges.

MANAGEMENT OF FLABBY TISSUE

1. Surgical removal of the tissue

Surgical removal of fibrous tissues followed by prosthodontic rehabilitation is challenging and extensive. The removal of fibrous ridge surgically will leave a firm ridge but will reduce the stability of the denture as well as lead to elimination of vestibular area. As with any surgical treatment option, the health of the patient must be taken into consideration. Removal is contraindicated in circumstances where little or no alveolar bone remains⁵. It can be argued that the fibrous part of the ridge has a cushioning effect that reduces trauma to the underlying bone, which therefore should not be removed. The removed tissue often requires prosthetic replacement by denture base material; this can increase the bulk and weight of the prosthesis. Retention is also adversely affected by the significant loss of the sulcus depth which is important in aiding border seal.⁶ These problems can be solved to some extent by fabricating a denture over a flabby ridge using impression technique specific for the condition by using different impression materials. Geriatric patients, in most of the cases, due to chronic medical conditions or medical treatments are inadequate for surgical procedures to excise the mobile mucosa, increase bone ridges, sinus lift. As a result, the management of the negative elements of the prosthetic field can be achieved by extending the basic principles of making complete dentures, without resorting to invasive procedures.

2. Implant retained prosthesis

The therapeutic possibility is implant-prosthetic treatment that requires augmentation, implant insertion and overdentures. Fixed and removable implant-retained prostheses have potential benefits compare to conventional prosthodontics. It enhanced the stability, retention, and oral function. An implant-retained overdenture, in comparison to a fixed prosthesis, is initially economic and the surgery is often more straightforward. However, the recurrent

cost due to maintenance can be considerable. Implants in the maxilla, which has a higher prevalence of flabby ridge, are not as successful as in the mandible. It is thought that this could be due to the placement of shorter implants into highly vascular, poor volume, low-density bone.⁷ The diminished alveolar bone volume in this subject group may result in restrictions on suitable implant sites or the need for bone augmentation. In terms of both time and finance, the initial cost and long-term maintenance costs of these restorations can be high.⁸ Factors considered while placement for implant retained prosthesis are fear of surgery, discomfort, and inconvenience, general health of the patient, and risk of surgical complications or implant failure.

3. Modified impression technique

Stability and retention of the dentures can be improved by implant retained prosthesis. But the factors like financial constraints and duration of the procedure make it unsuitable for every patient. These all problems can be avoided by conventional prosthodontic treatment with some modifications in technique. Modified impression techniques when used in this condition can record the fibrous tissues in undistorted form and thus help to fabricate a stable and functionally satisfying denture.

- **Using silicone impression material or Hobkirk technique⁹**

The technique includes primary impression with mucostatic impression material followed by fabrication of special tray for border moulding which is done with putty silicone material. A window is made on the area of flabby tissue. Secondary impression is made with light body silicone material. The excess material extending through the window is trimmed off. Tray adhesive is applied on the borders of the window and the tray is positioned back in the mouth. Light body silicone material is applied or syringed on the flabby ridge through window. It is allowed to set and is then removed as a single impression.

- **Palatal splinting using a two-part tray system or Osborne technique¹⁰**

This technique helps to maintain the contour of the easily displaceable tissue while the rest of the denture bearing area is recorded with the help of previous denture from where a primary cast is fabricated. From this, a palatal tray is fabricated with wax being used to create space on the palatal aspect of the mobile area extending to the ridge crest around the arch. In this acrylic resin palatal tray, a low resistance zinc oxide eugenol paste impression is made of the palate. An upward force is maintained until it is apparent that the mobile ridge is just beginning to have pressure applied to it. Once this has been set, a second special tray impression is made completely encompassing the first tray is inserted from front to backwards. The

presence of the supporting zinc oxide should prevent backward displacement of the mobile ridge.

- **Using impression plaster or Zafarullah Khan technique¹¹**

Primary impression is made with an irreversible hydrocolloid impression material in order to minimise distortion of the mobile tissue. The cast is poured and a modified tray with a spacer of about 1mm thickness is made. A window is made on the tray over the flabby ridge area. Border moulding is done with low fusing compound till functional sulcus is Recorded. Final impression is made with zinc oxide eugenol impression paste. The impression is taken out and the material that has escaped through the window in the tray is trimmed back. The impression is positioned back in the patient's mouth and impression plaster is applied on the flabby ridge exposed through the window using a brush. Once it sets the impression is carefully removed, separating medium is applied to the plaster area and the cast is poured with dental stone.

- **Controlled lateral pressure technique¹²**

It is used to record a fibrous posterior mandibular ridge. In this technique tracing compound is used to record the denture bearing area using a correctly extended special tray. With the help of a heated instrument the tray is perforated in the fibrous crestal tissues region. Light-bodied silicon impression material is then syringed onto the buccal and lingual aspects of the greenstick and the impression is gently inserted. The excess material is extruded through the perforations and the fibrous ridge will assume a resting central position having been subjected to even lateral pressures.

- **Selective composition flaming with impression compound material^{13,14}**

This technique includes primary impression using irreversible hydrocolloid followed by fabrication of primary cast. On that cast, another impression is made using impression compound with the help of a stock tray. After making an impression, its periphery is carefully softened and functionally trimmed. The fibrous part of the ridge can be outlined on the impression surface. This reduces the risk of displacing the flabby ridge. The impression is removed and warmed all over except the flabby ridge area and is border moulded. As the other parts of the impression compound is warm, and sink into the tissues the flabby ridge is compressed but not distorted. Impression paste is used over the impression compound to make the final impression.

CONCLUSION

The complete denture should fulfil its basic objectives of stability, retention, support, aesthetics, and preservation of tissues. Achieving stability and retention in fibrous ridges still remains a

prosthodontic challenge even after the advent of surgical and implant retained treatment options. Standard mucocompressive impression techniques are likely to result in an unretentive and unstable denture as the denture will be constructed on a model of the flabby tissue in a distorted state. However, there is a lack of scientific evidence for support of any technique over the other. Examination of old dentures wearers with increased instability is very important. If the causality of this type of mucosa is overlooked and its impression is not done properly, the new dentures will have the same instability as the old ones. Treatment plan should be decided after determining the displaceability of the flabby tissues and thereafter selecting the appropriate impression technique. This article presents a review of different impression techniques for managing cases with flabby tissue which are cost-effective, easy, time-saving procedures. This led to better results and better patient compliance.

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