Case Report

Management of Flabby Ridge Cases: A Challenge in Clinical Practice

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Abstract

The displaceable denture bearing tissues or flabby ridges is a common finding in edentulous patients. Unless managed appropriately, such 'flabby ridges' adversely affect the support, retention and stability of complete dentures. Many impression techniques have been proposed to help overcome this difficulty. A careful consideration and application of the principles of complete denture construction for such condition can provide a palliative form of treatment. This article describes reports of three such clinical cases, and demonstrates the use of a suitable impression technique.

Keyword: Complete Denture, Flabby Ridge, Impression Techniques

Introduction:

Complete denture prosthodontics will remain an important part of dental education and practice. The performance of a complete denture often depends on basic principles of impression making, i.e. maximum coverage of supporting area, peripheral seal without interference with functional movements and accurate adaptation to the tissues without injurious displacement. Recording the entire functional denture-bearing area ensures maximum support, retention and stability for the denture during use.¹ However, difficulties arise when the quality of the denture-bearing areas are not suitable for this purpose. Flabby ridge gives rise to complaints of pain or looseness relating to a complete denture that rests on them. When hyperplastic tissue replaces the bone, a flabby ridge develops which is often seen in long-term denture wearers and clearly related to the degree of residual ridge resorption. The reported prevalence for this condition varies among investigators, but it has been observed in up to 24% of edentulous maxilla, and in 5% of edentulous mandible, and in both jaws most frequently in the anterior region.² Surgical excision techniques or use of dental implants has provided clinicians with methods of addressing this particular difficulty. Even if surgical elimination of the flabby ridge is a logical treatment in many situations, care must be used when the ridge is extremely reduced. Although the flabby ridge may provide poor retention for the denture, it may still be better than no ridge at all.³ Therefore, this article tries to discuss three different impression techniques for fabrication of a retentive and stabilized denture for cases of complete edentulism with flabby ridges, through palliative approach. The patient’s cases discussed in this article with flabby ridge had a common complaint of ill-fitting denture. Medical history of these patients revealed no underlying systemic disorder. Intraoral examination showed flabby ridge in premaxillary area while the mandibular ridge was completely edentulous. As a palliative approach, instead of removing the cause of ill-fitting denture, i.e. flabby ridge, in these following cases we had used various modifications in impression technique to achieve minimum
displacement of denture during function and maximum retention and stability.

CASE REPORTS

Case Report 1:

Zafrulla Khan’s Window technique: 4 Zafrulla Khan has described a commonly used technique in impression making of flabby tissue. A wax spaced custom tray is fabricated from the primary cast. A window is cut in the custom tray which corresponds to the flabby part of the ridge (Figure No. 1). A blunt instrument is used to determine the relative amount of displacement or mobility of the flabby tissue. After border molding zinc oxide eugenol impression is made. Trim back any impression material which has escaped through the window of the tray (Figure No. 2). Inspect the impression for its completeness (Figure No. 3, 4). Reseat the impression and apply impression plaster over the exposed flabby tissue. This can be applied using a brush or a wax knife (Figure No. 5). The material should be stiff enough to be applied with a brush, but not runny to the extent that it drips. Remove the impression tray carefully when the impression plastic has set and check that it is satisfactory (Figure No. 6). Apply a separating medium over the plaster part of the impression before pouring it.

Case Report 2:

Palatal splinting using a two-part tray system: In 1964, Osborne described an impression technique involving two overlying impression trays used for recording maxillary arches with displaceable anterior ridges.5 The aim of this technique is to maintain the contour of the easily displaceable tissue while the rest of the denture bearing area is recorded. A primary model is constructed using the fitting surface contour of a previous denture. From this, a palatal tray (Figure No. 7) is fabricated with wax being used to create space on the palatal aspect of the mobile area and extending to the ridge crest around the arch. In this acrylic resin palatal tray, a low viscosity zinc oxide paste impression is taken of the palatal portion only (Figure No. 8, 9). An upward force is maintained beginning to have pressure applied to it. Once this has set, a second special tray impression is made completely encompassing the first tray. It should be inserted from in front, backwards, and the presence of the supporting zinc oxide should prevent backward displacement of the mobile ridge. A neat modification of this approach was described by Devlin6 in 1985, in which a locating rod is positioned in the centre of the palatal tray, but proclined to allow the second special tray impression to be guided in an oblique upward and backward direction to envelope the palatal tray. The palatal tray accurately locates the second part special tray using a stop, thereby allowing for a pre-planned even thickness of impression material. (Figure No.10)

Case Report 3:

Two part impression technique: Mucostatic and mucodisplacive combination: First described by Osborne in 1964 for use in the mandible, this is a popular technique described by many authors as it ensures that pressure exerted by the tray does not cause distortion of the mobile tissues. The preliminary impressions are taken and primary casts are poured.5,7,8,9 The displaceable tissue can be marked on the impression and transferred to the primary cast. A close fitting cold-cured or light-cured acrylic base is constructed so that the flabby ridge area is left uncovered (Figure No.11). An alternative, described by Hobkirk, McCord and Grant, involves removal of acrylic from a complete special tray creating a window over the displaceable area. Appropriate border correction is then carried out before an impression of the firm; supported mucosa is recorded in zinc oxide eugenol or medium-bodied silicone (Figure No.12). An impression of the displaceable mucosa is then recorded by applying or syringing a thin mix of impression plaster or light-bodied silicone (Figure No.13, 14). The latter having preferential use in cases involving undercut. Modification of the special tray after the more viscous impression material has been used to record the whole of the denture bearing area (including the displaceable area) previously described by McCord and Grant, could conceivably cause a degree of distortion in adjacent areas.
Figure No. 1: Special Tray with Window Opening

Figure No. 2: Border Molded Special Tray

Figure No. 3: Final Impression Making with ZOE

Figure No. 4: Zinc Oxide Eugenol Impression

Figure No. 5: Painting Plaster over Window

Figure No. 6: Completed Final Impression with Opening by Brush Window Technique
Figure No. 7: Palatal Tray with Proclined Guidance Rod

Figure No. 8: Second Tray Seated on Palatal Tray

Figure No. 9: Palatal Impression using ZOE

Figure No. 10: Finished Impression

Figure No. 11: Rim Handle Design Special Tray

Figure No. 12: First Stage Impression
Discussion:
Flabby ridges can be managed by prosthodontic management alone or in combination with surgical treatment depending on the degree of displaceability. Surgical excision is favorable if there is sufficient bone height, but most of the time it decreases the sulcus depth requiring vestibuloplasty. Ridge augmentation by grafting is an invasive treatment option, as it carries with it the risk of resorption or rejection of graft material along with the need for additional surgery for graft harvesting. The idea of injecting sclerosing solution to make the tissues firm was popularized by Desjardins and Tolman. The demerits reported with this concept are anaphylactic reactions, patient discomfort, loss of firmness in some cases, and technique sensitivity. Factors deciding the suitability of a patient for these surgical treatment options are age, general health, dental history, motivation, and personality.

Prosthodontic Management of a patient with a flabby maxillary ridge can be challenging problem and taking care to consider the influence of both the impression surface and occlusal surface detail in paramount. Standard Mucocompressive impression techniques are likely to result in an unretentive and unstable denture as the denture constructed on a model of the flabby tissue in a distorted state. The use of selective pressure or minimally displacive impression techniques should help to overcome some of these limitations. The use of holes, windows and wax relieve reduces the hydraulic pressure and minimize the displacement of the bearing tissues.

The suggested three methods eliminates them excessive displacement of the soft tissues at the secondary impression thus a physiologic and anatomic registration of the attached and the unattached tissue of the denture bearing areas are attained. This article describe the impression technique to minimally displace the flabby tissue and reproduction of maximum details, of which palatal splint technique gives better retention and stability. Choice of treatment modality is made by keeping in mind that the requirement of stability and retention of the prosthesis must be balanced along with the preservation of the health of oral tissues for every patient.

Conclusion:
This paper has described an impression technique for management of a denture bearing area that contains flabby tissues. The materials used are readily available and used in contemporary general dental practice. The technique does not require additional clinical visits compared to fabrication of a conventional complete denture. The time required for the specialised impression technique is not excessive. This technique can be readily completed by the general dental practitioner, allowing flabby ridge complete denture cases to be managed in a primary dental care setting.
References:
