

Comparing Different Impression Techniques Used for Recording Flabby Tissue: Case Series

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ABSTRACT

Background: A stable and functionally satisfying denture needs tissues to be recorded in undistorted state. This is not possible when tissues to be recorded are flabby. Implant, as a fixed rehabilitating option cannot be suitable for every completely edentulous patient. So, employing routine rehabilitation procedures for completely edentulous arches by innovative impression techniques is required to get a more stable denture. A systematic approach adopted to overcome problems regarding flabby tissue and proven applicable have been published as literature reviews from time to time. An insight into these proven literatures can lead to better idea regarding success or failure of treatment. This paper presents case series of different cases of flabby tissue performed by author, single handedly. It extensively discusses about etiology and drawbacks of flabby tissue affecting the stability of denture. Further, it describes the materials involved and techniques performed for correcting the same, to get more stable denture. It concludes with the comparison of performed techniques and advantages of one technique over other techniques.

Keywords: Impression, Flabby tissue, impression technique.

INTRODUCTION

Flabby tissue is the displaceable tissue overlying the edentulous base. Common site for flabby tissue is maxillary anterior region. Second most common sites for flabby tissue are maxillary posterior and mandibular anterior region.^[1]

Etiology-pathology of flabby tissue is different from person to person. Basic pathology for such change is resorption of alveolar bone which leads to hyperplastic tissue formation. The possibility of this change in alveolar bone and overlying mucosa is either due to advancing age & loss of all teeth or due to combination syndrome.^[1]

Kelly in 1972 described the changes caused by maxillary complete denture opposed by

mandibular anterior teeth and distal extension RPD and termed it as Combination syndrome. This includes clinical features such as loss of bone from anterior maxilla with concurrent fibrous tissue hyperplasia, overgrowth of maxillary tuberosity, extrusion of mandibular natural dentition and papillary hyperplasia of hard palate.^[2]

Sometimes, long term wearing of ill-fitting dentures can also lead to flabby tissue formation. Forces move the tissue during mastication & create problems in denture positioning and compromised peripheral seal.

Problems associated with flabby tissue, Compromised retention & stability of dentures.

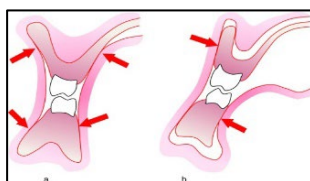
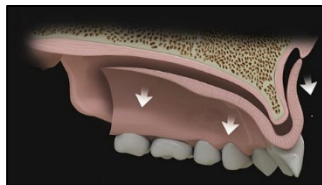
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Retention depends on forces which resist displacement of the denture away from the denture bearing area. Stability relies on avoiding forces likely to displace the denture laterally or antero-posteriorly.^[1,3]



METHODOLOGY

What can be the treatment strategies for complete denture fabrication? This paper presents five techniques which were performed by single operator having same principle for impression taking i.e. 'Selective pressure application'. The techniques are as follows,

1. Palatal splinting using two-part tray system
2. Zafrulla khan technique
3. Selective perforated tray technique
4. The Modified Window technique
5. Controlled Lateral Pressure technique

1. PALATAL SPLINTING USING TWO-PART TRAY SYSTEM:-

This technique was originally Described by Osborne in 1964. It is used for maxillary flabby tissue. ^[4,5] Preliminary impression was made using low viscosity alginate impression material. It is Muco-static impression material. So, tissues can be recorded in a static position. ^[4,5]



Two overlying impression trays were fabricated. The palatal tray was constructed on the primary cast with a wax spacer to provide space on the palatal aspect of the flabby area and extending to the ridge crest around the arch. Maxillary custom tray which was fabricated in such a way that it completely covers the palatal tray. ^[4,5]

Border molding was done in the second tray using low fusing green stick compound. First, Impression of the palate was made using the palatal tray with a low resistance zinc oxide eugenol impression material. ^[4,5]

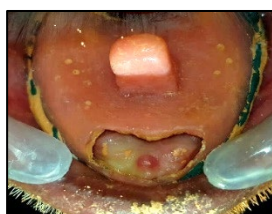
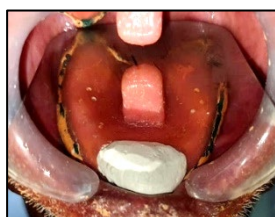
Application of upward pressure was done till the flabby tissues just begin to receive the pressure. Then, the second tray was inserted from front to backwards containing light body silicone impression material. ^[4,5]



2. ZAFRULLA KHAN TECHNIQUE:-

It was Given by Zafrulla Khan et al in 1981.^[6] Preliminary impression was made using low viscosity alginate impression material. After pouring preliminary impressions, a custom tray

was made with self-cure acrylic resin and trimmed up to secondary line. Border molding was done. [6]



Marking of flabby tissue was done intraorally. According to the marking, a window was made in custom tray. Final impression was made using zinc oxide eugenol impression material. The window area was recorded by impression plaster and supported by gauze-piece until it was not set. [6]

The impression is removed from the mouth gently after it gets set. Application of separating medium should be done before pouring over the area recorded with impression plaster. [6]



3. SELECTIVE PERFORATED TRAY TECHNIQUE: -

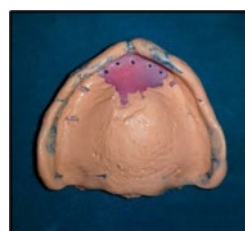
This technique was given by in 2003. This technique is only used if the degree of mobility of flabby tissue is minimal. [7,8] Preliminary

impression was made using low viscosity alginate impression material.



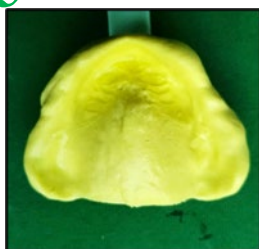
Preliminary impression was poured. Required spacer design and then special tray was made. Border molding was done. Final impression was made using zinc oxide eugenol impression material except for the anterior region. [7,8]

Maxillary anterior region was flabby. So, pressure over this unsupported, flabby tissue was minimized further by the making multiple perforations in the tray overlying these areas. Impression of anterior flabby tissue was made using light body silicone impression material. [7,8]



4. THE MODIFIED WINDOW TECHNIQUE: -

This technique is same as Zafarullah khan technique except for the material used to record flabby region. A light body silicone impression material was used in place of impression plaster. Preliminary impression was made using alginate impression material. [1] Final impression was made using zinc oxide eugenol impression material, except for the anterior flabby region. The flabby area was recorded by light body silicone impression material. [1]



5. CONTROLLED LATERAL PRESSURE TECHNIQUE: -

It was introduced by Crawford and Walmsley in 2005. Specifically, it is for flabby mandibular posterior ridge. Preliminary impression was made using alginate impression material.^[9]



Preliminary cast was made. A custom tray with spacer was fabricated. A low fusing tracing compound was used to border mold as well as record the denture bearing area using a correctly extended special tray.^[9]

The low fusing compound over the flabby crestal tissue was removed with a heated instrument and tray was perforated in this region. Light body silicone impression material was applied on to the buccal and lingual aspects of the low fusing compound in the area and the impression was made. The excess material escapes through the perforation and the flabby ridge recorded in a resting central position having subjected to even bilateral pressure by the extensions of the low fusing compound.^[9]



DISCUSSION

Palatal splinting using two-part tray system has drawbacks. It is re-positioning of second tray. But Devlin (in 1985) developed a modification to overcome the drawback of positioning of tray, where locating rod was positioned on the second special tray in an oblique upward and backward direction to envelop the first palatal special tray. Still, there are two different impression trays are used. So, this technique can be time consuming compared to other techniques.^[4,5]

Zafrulla khan technique is advantageous as it provides adequate clinical visibility of movable tissue, less chair side time is needed and doesn't require two separate trays. But careful handling is required as the material used is brittle nature.^[6]

Coming to the selective perforated tray technique, this is only referable when degree of mobility of flabby tissue is minimal and when flabbiness is in a less tissue area, which can not be possible in each and every patient.^[7,8]

The name 'Controlled Lateral Pressure technique' itself suggests that it doesn't record

tissues in a static stage. But the lateral pressures from buccal and lingual aspect can lead to record flabby tissues in a muco-compressive stage.^[9]

The Modified Window technique is the only technique in which the drawback of impression plaster can be overcome by using light body silicone material. It is easy to handle, more accurate and doesn't distort.^[1,4,5]

Managing a patient with flabby ridge can be a challenging problem. Standard muco-compressive impression techniques are likely to result in a non-retentive and unstable denture as the denture will be constructed on a model of the flabby tissue in a distorted state. Muco-static techniques may not make the best use of the available tissue support and movement of the denture base relative to the support tissues may be a problem.^[10,11]

The use of selective pressure or minimally displacive impression techniques should help to overcome some of these limitations. With modified impression techniques, these ridges can be managed effectively without any additional clinical visits as compared to patients with normal edentulous ridges.^[10,11]

CONCLUSION

Modified techniques are required in a flabby ridge to record the tissues in an undistorted position. 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.

Of all the techniques described the Modified Window Technique is found to record the fibrous ridge in its most non-displaced position and appear to have the highest number of supports in the literature reviewed. It has a minimal degree of distortion occurs by anterior distortion & easy to handle.

Declaration Of Patient Consent:

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient(s) has/have given his/her/their consent for his/her/their images and other

clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

CONFLICT OF INTEREST

The authors declare no Conflict of Interest

REFERENCES

1. Ashish R. Jain, Research scholar, Clinical demonstration of various techniques for effective management of flabby ridge-An overview, Journal of Disease and Global Health, 2016;7(4):188-196.
2. Kelly E. Changes caused by a mandibular removable partial denture opposing maxillary complete denture. J Prosthet Dent. 1972;27: 140-43.
3. Glossary of prosthodontics terminology – Ninth Edition. 2017;117(5):1-105.
4. Osborne J. Two impression methods for mobile fibrous ridges. Br Dent J. 1964;117:392-394.
5. Devlin H. A method for recording an impression for a patient with a fibrous maxillary alveolar ridge. Quint Int. 1985;6: 395-397.
6. Khan Z, Jagers J, Shay J. 1981. Impressions of unsupported movable tissues. J Amer Dent Assoc., 103:590-2.
7. Lynch CD. and Allen PF. 2006. Management of the flabby ridge: using contemporary materials to solve an old problem. Br Dent J., 200(5):258-61.
8. Massad J, Lobel W, Garcia LT, Monarres A, Hammesfahr PD. 2006. Building the edentulous impression-a layering technique using multiple viscosities of impression material. Compend Contin Educ Dent., 27(8):446-51.
9. Crawford RWI, Walmsley AD. A review of prosthodontics management of fibrous ridges. Br Dent J. 2005;19;9:715-19.

10. Zarb GA, Bolender CL, Carlsson GE. Boucher's Prosthodontic Treatment for edentulous patients. 11th ed. London; St. Louis: Mosby. 1997;36.
11. Mc Cord JF, Grant AA. Impression making. Br Dent J 2000; 188: 484-92.