

PROSTHODONTICS REHABILITATION OF A MAXILLARY FIBROUS RIDGE – A CASE REPORT

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Abstract

The Unusually Displaceable denture-bearing tissues often present a difficulty when fabricating complete dentures. Unless managed appropriately, such 'flabby ridges' adversely affect the support, retention and stability of complete dentures. In particular, problems arise during the procedure of impression making, when forces cause the highly mobile denture bearing tissues to become distorted leading to loss of peripheral seal and perpetuate tissue inflammation. This paper presents a case report of one of the impression making technique for edentulous patients with flabby alveolar ridge.

Key Words: Flabby Ridge, Hyperplastic Tissue, Mucostatic Technique.

Introduction

A 'fibrous' or 'flabby' ridge is an area of mobile soft tissue affecting the 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.¹

During mastication the force of chewing can displace this mobile denture-bearing tissue, leading to altered denture positioning and loss of peripheral seal. Distortion of the mobile tissue can occur by forces exerted during the act of impression making resulting in poor stability of the denture and both function and appearance can be heavily compromised.

Published studies indicate that the prevalence of flabby ridges can vary, occurring in up to 24% of edentulous maxillae and in 5% of edentulous mandibles. In both the arches the flabby ridges are commonly found in the anterior region. It is often related to the degree of bone resorption and in severe cases this can be to the level of the anterior nasal spine.¹

Historically, flabby ridges found in the anterior maxilla were a feature of the 'combination syndrome'. In this 'condition', the flabby ridge was thought to occur as a result of a maxillary complete denture opposing mandibular anterior natural teeth, without proper posterior occlusal support. Such flabby tissues could also arise as a result of unplanned or uncontrolled dental extractions.

Typically these 'flabby ridges' are composed of mucosal hyperplasia and loosely arranged fibrous connective tissue as well as more dense collagenised connective tissue. In the soft tissue, varying amounts of metaplastic cartilage and/or bone have been reported.¹

To overcome these problems the methods suggested are

1. Surgical removal of fibrous tissue prior to conventional prosthodontics.
2. Implant retained fixed or removable prosthodontics.
3. Conventional prosthodontics without surgical intervention.²

Fibrous ridges pose a prosthodontic challenge for the achievement of stable and retentive dental prostheses.

Emphasis has moved away from surgical removal of the fibrous tissue. Implant retained prostheses may not be most suitable treatment option for many patients. When considering conventional prosthodontics, there are a variety of impression techniques available to address the problems caused by the unsupported tissue during denture construction, however currently there is a lack of scientific evidence for support of any technique over another.

Considerations for selection should include the location and extent of unsupported tissue, as well as the patient's presenting complaint.

Managing Hyperplastic or Flabby Tissue (Unsupported Movable Tissue)

Impression for flabby or hyperplastic ridge can be made by recording the unsupported movable tissue with minimal displacement and the rest of the tissue with selective pressure technique. Various techniques to record the hyperplastic tissues are as follows:

William H Filler

He described a technique using two trays. The second tray is keyed on the first tray. Light body material is used in the first tray as a corrective wash material.²

Adhesives are painted over the areas not covered by the first impression in second tray and impression is made. The two trays are held tightly together until the impression material sets. Impression is removed as a single unit.

Hobkirk technique:

Only a single custom tray is used. Border molding is done in the usual manner and impression is made with heavy bodied addition silicone. The areas of movable tissue are cut out and relief holes are made. Wash impression is made with light body impression material.³

Zafrulla Khan technique:

A window is cut in the custom tray where the unsupported area is present. The unsupported area is recorded with impression plaster and the remaining areas are recorded with final impression material.⁴

Jone D Walter technique:

He recorded the healthy denture bearing tissues with zinc oxide eugenol paste and the undisplaced fibers of tissue with impression plaster.⁵

'Splint Method' By Allan Mack:

It is used if tissues are excessively and exceptionally flabby. Loosely fitting tray or a special tray made with heavy relief over the flabby area is taken. Plaster is mixed and applied over the flabby area to a thickness of about 3 mm and is allowed to set.

Tray is filled with second mix of plaster and the impression is made. The initial coating of the flabby areas thus acts as a 'splint'. It gets removed with the second impression.⁶

Modified Fluid wax impression:

They suggested a functional impression technique using fluid wax that captures the primary and secondary load-bearing areas without distortion of the residual ridge. The steps involved in this technique are:

- Preliminary impression made with an irreversible hydrocolloid impression material.
- Border mold the tray with modelling plastic impression compound in segments.
- Trim the tray over the crest of the residual ridge and create a window opening above the displaceable mandibular ridge.
- Melt the impression wax in a water bath and apply onto the borders of the tray with a wax spatula until a glossy surface is visible.
- Apply adhesive on the tray surrounding the window opening and allow it to dry.
- Place the impression tray on the ridge and inject vinyl polysiloxane impression material over the window opening.⁷

This article tries to discuss a case of complete edentulism with flabby ridge treated through conventional prosthodontics without surgical intervention.

Case Report

A male patient of about 65 years age reported to The Department of Prosthodontics, Teerthanker Mahaveer Dental College & Hospital & Moradabad, to get his missing teeth to be replaced.

History revealed that he was a complete denture wearer since last 7 years. Loose dentures, was his chief complaint. Systemic examination revealed that the patient was diabetic with controlled blood sugar levels. On intra-oral examination, it was seen that the patient was completely edentulous with an extensively flabby ridge in the maxillary anterior region. (Figure 1)

Various treatment modalities including surgical management of the flabby ridge and implant supported denture were discussed with the patient but he was not willing to undergo surgical procedures and also the

treatment cost was not affordable. Thus it was decided to provide him a new denture with appropriate impression technique and occlusion. Before commencing the treatment, the patient was advised to discontinue using his old dentures for a week, which provided a healthy tissue condition to start the impression procedure.



Figure 1: Flabby tissue in maxillary anterior region

Procedure

The primary impression of maxillary denture bearing area was made with irreversible hydrocolloid impression material (Imprint – DPI) to minimize distortion and record the flabby tissue in un-displaced manner. The impression was poured in dental plaster, (Kadent, Kalahari, and Karson-Mumbai). The displaceable tissue area was marked intraorally with the help of indelible pencil and transferred to the primary cast. A sufficient amount of relief was provided by using a 'three sheet thickness wax spacer' (Y-DENTS, Modelling wax, MDM Corp, Delhi) on the flabby area, and a single sheet complete spacer on the rest of the region. The tissue stops were cut at the marked tissue stop. A thin aluminium foil was adapted onto the wax spacer to prevent the wax contamination of the custom tray and a special tray was fabricated with auto-polymerizing acrylic resin (DPI). (Figure 2)



Figure 2: Space in maxillary special tray

The tray adhesive (Densply, VPS tray adhesive) was applied uniformly on the tissue side of the custom tray and also on the border as well as 2-3 mm beyond the border of the custom tray. The tray adhesive was air dried for 5 minutes. Single step border moulding was done with

heavy body polyvinyl siloxane (Densply). (Figure3)



Figure 3: Single step border moulding

The spacer in the flabby area was removed and the relief holes were made followed by the wash impression with light body impression material (polyvinyl siloxane - Densply). (Figure 4)



Figure 4: Light body wash impression

The mucostatic technique administered in this case provided an undisplaced impression of movable tissue.

The impression was cast in dental stone (Ultrarock, Kalahari, and Karson-Mumbai), paying careful attention to preserving the border moulded sulcus area. Denture fabrication was done following the routine procedures. The dentures inserted in the patient's mouth were found to be well stabilized and supported. (Figure 5)

At subsequent review appointments the patient was reported to be satisfied.

Discussion

The basic objectives of complete denture prosthodontics are the restoration of function, facial appearance and the maintenance of the patient's health.⁸ However, epidemiological studies of the edentulous population have shown that most patients have pathologic tissue changes

under the dentures that require treatment. These changes have little relation to a patient's perception of denture success or personal oral health status.⁹



Figure 5: Finished & Polished complete denture

The success of a new denture requires the support of healthy tissues. Any soft tissue or hard tissue defects should be treated before commencing the definitive treatment. A comprehensive clinical examination and accurate medical/dental history are essential to identify problems and take necessary corrective action. Recovery of abused tissue requires tissue rest, tissue conditioning and if not successful requires surgical intervention¹⁰.

As stated by DeVan¹⁰ "Our objective should be the perpetual preservation of what remains rather than meticulous restoration of what is missing". Keeping this as our aim, for the present case we opted the mucostatic technique of impression making with due respect to the abused tissue.

Liddlelow described a technique whereby two separate impression materials are used in a custom tray (using 'Plaster of Paris' over the flabby tissues, and zinc oxide and eugenol over the 'normal' tissues). Similar studies were done by Watson, McCord JF (2000) 10 and Ahmad F (2000) 10 where they used the window technique. Our study has adopted the similar technique where a single tray was used to record the abused and non-abused areas together with heavy and light body material. In contrast to this, Osborne described a technique whereby two separate impression trays and materials were used separately to record the 'flabby' and normal 'tissues'.

The two stage technique is the closest of recording the fibrous ridge in its undisplaced position and would appear to have the highest number of advocates in the literature reviewed.¹⁰ Indeed, the use of mucostatic impression techniques for the majority of normal cases were advised following a review of prosthodontics standards carried out in 1989.¹⁰

While there is much speculation in the dental literature regarding the most suitable impression technique for a complete denture, there is no evidence to indicate that one technique produces better long term results than the other.¹⁰

Conclusion

Fibrous ridges pose a prosthodontic challenge for the achievement of stable and retentive dental prostheses. Emphasis should be laid on non-surgical management followed by modified prosthodontic procedures to achieve desired results. Surgical management and implant retained prostheses may not be most suitable treatment option for many patients. When considering conventional prosthodontics, there are a variety of impression techniques available to address the problems caused by the unsupported tissue during denture construction. One should be aware of these methods and materials that can be used to overcome the challenges encountered in making a stable, retentive, comfortable and long lasting dental prostheses.

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