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CLINICAL REPORT

A Prosthetic management of flabby ridge in complete denture fabrication – A Case Report

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ABSTRACT

The fabrication of Complete dentures with good retention and stability on flabby ridges poses an arduous task to the clinician. Accurate impressions are first step towards a well-fitting prosthesis. Methods applied for flabby ridge management includes surgical removal, special impression techniques and implant therapy. Special impressions often involve window technique for static impression of flabby area, which present multiple challenges. In this article, a newer technique of impression making of the flabby tissues using a combination of readily available newer and older materials is done to ensure an accurate and easy impression of these tissues.

Key words: *Flabby ridge, Fibrous tissue, Impression compound, Polyvinylsiloxane*

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INTRODUCTION

Complete denture procedures are one of the applications of prosthodontics which is of utmost importance. In the present age, the life span has increased considerably averaging to about 70 to 75 years and as the trend seems that life begins at 50 years, a complete denture is of great importance. The performance of a complete denture greatly depends on support and retention. The amount of tissue preserved can be used as a key to determine the quality of a prosthesis. Even after delivering a good prosthesis, poor oral hygiene and inadequate tissue rest, and lack of patient co-operation to attend the follow-up visits can cause extensive damage over time. One such damage is the replacement of alveolar bone by hyperplastic soft tissues which is termed as 'flabby' ridge. Flabby ridge is an adaptation of the tissue to residual ridge resorption.[1] Retention, support, and stability of complete dentures will be affected badly by flabby ridges and this should be managed by special impression techniques. A number of techniques have been proposed for the management of flabby ridges.[2] 1. Surgical methods: This includes removal of flabby ridge by scalpel surgery or by injecting a sclerosing agent prior to fabrication of complete denture.[3] 2. Special impression techniques: Flabby ridges are recorded using different impression techniques, with the minimum amount of tissue displaced.[4] These techniques include: (a)Muco-compressive (displacive, entire denture bearing tissues are compressed) (b)Muco-static (non-displacive, denture bearing tissues are not compressed) (c)Selective pressure impression (denture bearing tissues are selectively compressed).[2,5] A different impression technique was proposed by Magnusson et al using two different impression materials in a custom tray. Impression plaster was used to record flabby ridge and, zinc- oxide- eugenol over healthy tissue.

Osborne et al have tried a different way of recording tissues using two different impression materials utilizing two separate custom trays.[6] A technique was described by Watt and McGregor using impression compound in custom tray followed by zinc-oxide-eugenol wash impression. They claimed it would reduce the movement of the denture base under occlusal loads. Lynch and Allen re-evaluated this technique using polyvinylsiloxane impression materials.[7]

Watson proposed a window impression technique, to minimize the movement of flabby ridge during function. They created a window in the custom tray over the flabby tissues anteriorly and used the

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impression plaster for the flabby ridge and zinc-oxide eugenol impression paste for the healthy denture bearing area.[8] But with the window technique it is difficult to obtain a uniform application of impression material. The purpose of this article is to present a modified impression technique for flabby tissues with better material control and application of PVS impression material.

CASE REPORT

A 58-year old female patient reported to the Department of Prosthodontics and Crown and Bridge, Mar Baselios Dental College, Kothamangalam, with the complaint of looseness of the present dentures. The patient was wearing ill-fitting dentures for the past 20 years. There was difficulty in eating and speaking with his old dentures. No relevant medical history was reported. On examination, it was found that there was an area of flabby tissue in the maxillary tuberosity region, and blanching of the tissues was seen when pressure was applied with the end of mouth mirror. The anterior mandibular edentulous ridge presented with flabby areas and mandibular ridge was also resorbed. (*Fig.1&2*)

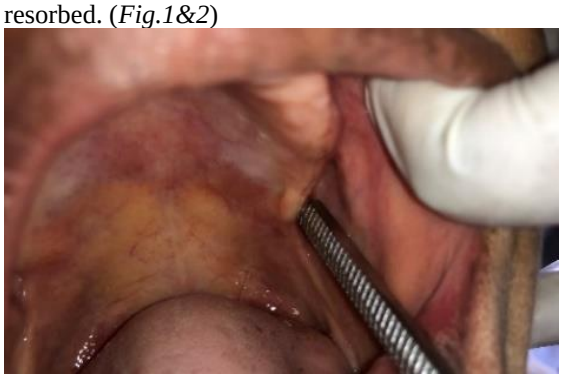

Figure 1: Intraoral image of the maxillary flabby ridge

Figure 2: Intraoral image of the mandibular flabby ridge

A treatment plan was done for fabricating a complete denture with the modification in the impression technique, to achieve minimum displacement of the denture during function, with maximum retention and stability. The spacer was adapted on the maxillary cast and additional wax placed to provide relief over the flabby area. In the mandibular cast, spacer was adapted over the ridge except for the buccal shelf area, and additional wax placed over flabby regions on cast to provide additional relief.(*Fig.3*) Maxillary and mandibular custom trays were fabricated using clear auto polymerizing acrylic resin (RR self-cure acrylic resin, Dentsply, India.(*Fig.4*)

Figure 3: Relief wax placed over maxillary and mandibular arch and extra wax adapted over flabby areas to provide relief

Figure 4: Maxillary and Mandibular custom tray fabricated with clear acylic custom tray

Clear acrylic resin was preferred for tray fabrication as tissue blanching underneath the tray could be easily evaluated, thereby making it easier for the operator to relieve pressure spots on the tray. The Buccal shelf area was recorded by using mucocompressive impression material like impression compound Type 1. The remaining

borders of impression were recorded by using a green stick compound (Pinnacle tracing stick, DPI, Mumbai, India).(*Fig.5*)

Figure 5: Custom tray with complete mandibular border moulding & Buccal shelf area recorded with impression compound

The spacer wax was then removed and multiple holes were drilled on the custom tray in the region of the flabby tissue.(*Fig.6*) Tray adhesive was applied. A final impression was made using polyvinylsiloxane impression material (Light body) (Aquasil LV Monophase, Dentsply Caulk).(*Fig.7*)

Figure 6: Mandibular custom tray with wax spacer removed. Multiple relief holes are placed in areas of flabby tissue

Figure 7: Completed mandibular impression with polyvinyl siloxane impression material

The maxillary borders were recorded using a green stick compound.(*Fig.8*) The relief wax was removed and multiple holes were drilled in the supporting tray.(*Fig.9*) Placement of multiple relief holes was done to ensure prevention of pressure build-up in the flabby area thereby leading to inadvertent tissue. Final impression was made with polyvinyl siloxane impression material.(*Fig.10*)

Figure 8: Custom tray with complete maxillary border moulding

Figure 9: Maxillary custom tray with wax spacer removed and multiple relief holes placed over flabby area

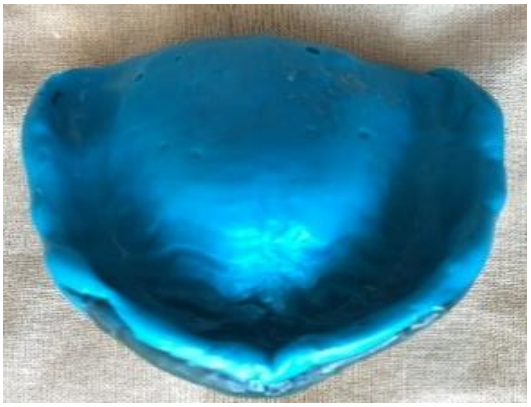

Figure 10: Completed maxillary secondary impression with polyvinylsiloxane material

Figure 11: Post operative photo with fabricated prosthesis

DISCUSSION

There has been a lot of techniques cited in the literature for flabby ridge management. Each technique has its advantages and shortcomings. Flabby ridge can be managed by removing the flabby tissue using scalpel surgery or a sclerosing agent can be injected prior to fabrication of complete denture.[3] Surgical ridge augmentation has also been proposed.[10] According to Crawford and Walmsley, bulk of denture base increases due to removal of flabby tissue, and trauma of denture bearing tissues can occur because of elimination of stress absorbing tissues.[11] The advantage of the surgical technique is that it provides a firm denture bearing area.

If conventional impression procedures are used to record both the healthy and flabby tissue in a single impression, flabby tissues get compressed during impression making and these tissues can later recoil and can dislodge the overlying denture. Thus, we require an impression technique that compresses the non-flabby areas to get optimum support and at the same time, does not displace the flabby tissues. Watson et al proposed a window technique for making impression of flabby ridge. In the window technique, studies have proposed to record the impression along with the peripheral seal followed by preparation of window and recording of displaceable tissues with a low viscosity impression material (impression plaster).[9] Allen et al have suggested that to allow for accurate peripheral tracing of the functional sulcus and improved final impression, a custom tray with a window should be prepared before the recording of final impression and displaceable tissue should be recorded in a static position through the window after final impression.[12] In addition, PVS materials are preferred by clinicians as they are available in different viscosities suitable for mucostatic and muco-compressive flabby ridge impressions.[13]

Lynch and Allen[7] advocated the use of impression compound over the buccal shelf area for recording impressions in distal extension partial denture ensuring a stable and uniform contact on the buccal shelf area, which in this case is the primary stress-bearing area. It also acts as a stopper for the tray in the final impression procedure. Light body impression materials produce minimal tissue displacement.[14] Use of impression compound as a stopper for an edentulous mandibular impression also has its advantages as it avoids placing conventional stoppers in flabby areas. The presence of impression compound also helps in orienting the tray thereby ensuring proper seating during border moulding and secondary impression procedures. Exposure of the compound after impression making enables us to visualize proper compression of the stress-bearing area, which can be assessed by exposure of the compound through the final impression material.

CONCLUSION

For the achievement of stable and retentive dental prostheses, flabby ridges pose a prosthodontic challenge. In the present age, surgical removal of the fibrous tissue is not preferred by the patients. The points such as location and extent of unsupported tissue, as well as the patient's presenting complaint, must be kept in mind while selecting the method of treatment. Though there are a variety of impression techniques available to address the problems caused by the unsupported tissue during denture construction, currently there is a lack of scientific evidence to confirm that one method is superior to the other.

CONFLICT OF INTEREST

There is no conflict of interest

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