Prosthodontic Management of Flabby Ridge with a Modified Window Impression Technique – A Case Report

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Abstract

The performance of a complete denture is often a reflection of its support and retention of the underlying hard and soft tissues. If the superficial aspect of alveolar ridge is compressible more than 2mm, this will result in a mobile soft tissue (flabby tissues). This occurs when hyperplastic soft tissue replaces the alveolar bone. During conventional impression procedures, the flabby tissues are compressed and will later tend to recoil and dislodge the resulting overlying denture. This article aims to presents a case report for the prosthodontic rehabilitation of a patient with a flabby tissue with a modified window impression technique.

Keywords: *Flabby ridge, Impression technique, Metallic denture base, Modified window impression.*

Introduction

The ultimate goal of any prosthodontic treatment is restoration of the aesthetics, comfort and function of the missing dentoalveolar and its supporting structures. The performance of a complete denture is often a reflection of its support and retention of the underlying hard and soft tissues.[1] A thickness of 1.5-2mm of masticatory mucosa of adequate soft tissue is required to support the denture. A complete denture master impression should record the entire functional denture-bearing area to ensure maximum retention, stability and support for the denture.[2] However this is difficult to accomplish in the case of a flabby ridge. If the superficial aspect of alveolar ridge is compressible more than 2mm, this will result in a mobile soft tissue. This occurs when hyperplastic soft tissue replaces the alveolar bone.

This is a common particularly in the upper anterior region of long term denture wearers. According to literature reviews the prevalence of flabby ridges can vary, occurring in up to 24% of edentate maxillae and 5% in the edentate mandibles.[3,4]

A common finding in combination syndrome is the presence of flabby ridges in the anterior maxilla. 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. Flabby tissues could also result from unplanned or uncontrolled dental extractions. A variety of techniques have been suggested to circumvent the difficulty of making a denture to rest on a flabby ridge. [5,6]

During conventional impression procedures, the flabby tissues are compressed and will later tend to recoil and dislodge the resulting overlying denture. Hence, the need for a special impression procedure to obtain stability, support, retention. This article aims to presents a case report for the prosthodontic rehabilitation of a patient with a flabby tissue using a modified window impression technique.

Technique report:

A 45 year old male reported to the Department of Prosthodontics at Thai Moogambigai Dental College and Hospital with a chief complaint of a loose and fractured maxillary complete denture. On intra-oral examination, it was noted that there was a flabby tissue present on the anterior maxillary region. In the mandible, the incisors were missing. The treatment plan for this patient was to provide an upper complete denture with a metallic denture base using a modified window

impression technique and a removable partial denture in the mandible.

The technique is as follows :

1) The primary impression was made with a perforated stock trays using an irreversible hydrocolloid impression material for the maxilla and mandible. (Figure 2)

A primary cast was poured and the wax spacer design was outlined using a haematoxylin pencil. (Figure 3)

2) Wax spacer design: An even layer of baseplate wax was adapted 4mm short of the sulcus around the entire denture bearing area except the PPS region. Tissue stops were provided in the canine and molar region bilaterally. An additional layer of baseplate was adapted in the flabby tissue region. On top of that, four additional evenly spaced wax extensions of 4x4mm were adapted in that region. (Figure 3)

3) A special tray was fabricated using a light cure sheet (poly tray DELTA). (Figure 3)

4) Secondary impression procedure: Border moulding was accomplished using heavy body impression material (virtual refill heavy body regular set tray material IVOCLAR VIVA DENT). Following border moulding, the entire wax was scooped out and relief holes were provided in the mid palatal region using a straight fissure bur. The wash impression was made using monophase impression material (Aquasil Monophase Impression Material Dentsply). The impression material extending on the anterior flabby tissue region was removed using a number 11 BP blade. The tray was then reinserted inside the patients mouth and the anterior flabby ridge was recorded by injecting light body impression material in the prefabricated slots on the special tray. (Figure 4)

5) A master cast was obtained after beading and boxing of the impression. (Figure 5)

6) A Metal denture base was fabricated on the master cast. (Figure 6)

7) Occlusal rims were made and the jaw relation was done along with a facebow transfer. (Figure 7)

8) The maxillary and mandibular casts were then mounted in a semi-adjustable articulator (Whipmix Hanau wide-vue arcon articulator). (Figure 7)

9) Teeth arrangement was done followed by a wax try. (Figure 8)

10) The maxillary and mandibular dentures were then processed and inserted. (Figure 9)

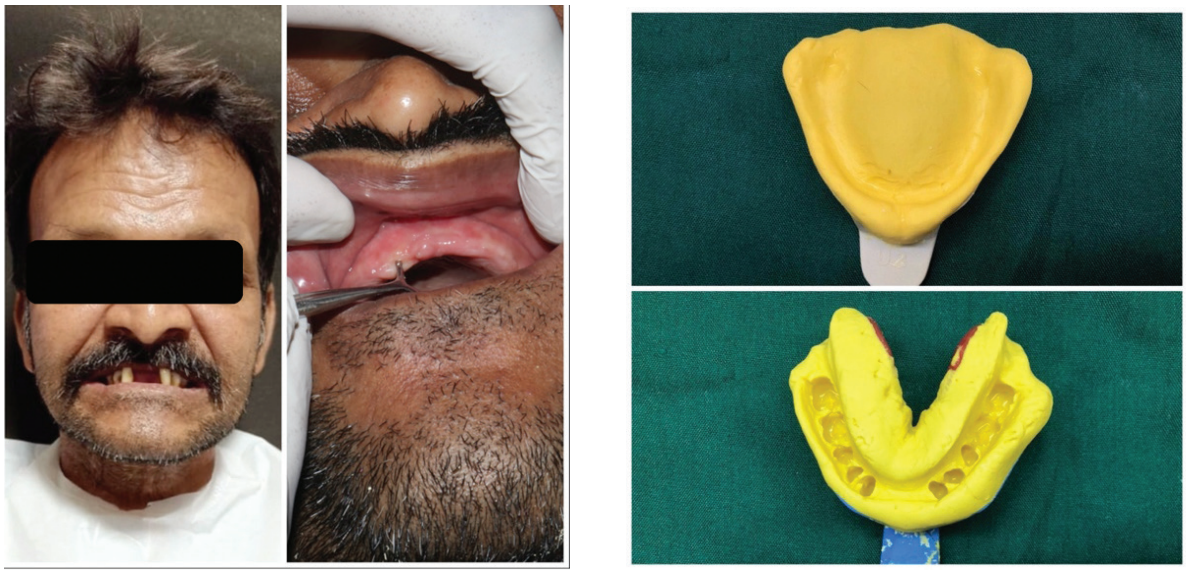

Figure 1: Pre-Operative phot,

Figure 2: Primary impression of intra-oral view of flabby tissue. maxilla and mandible.

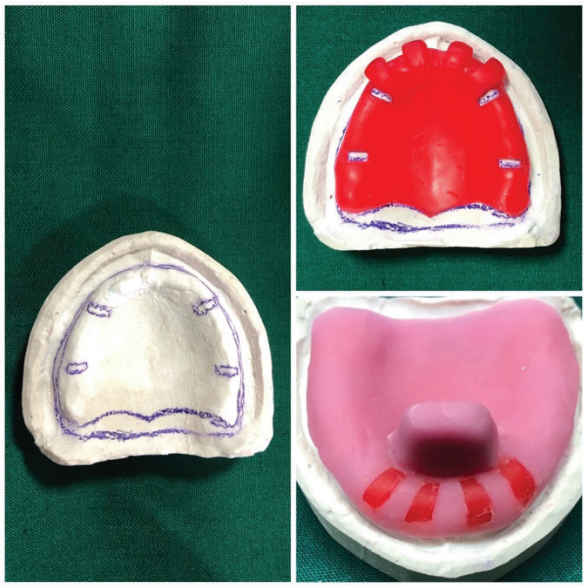

Figure 3: Special tray design.

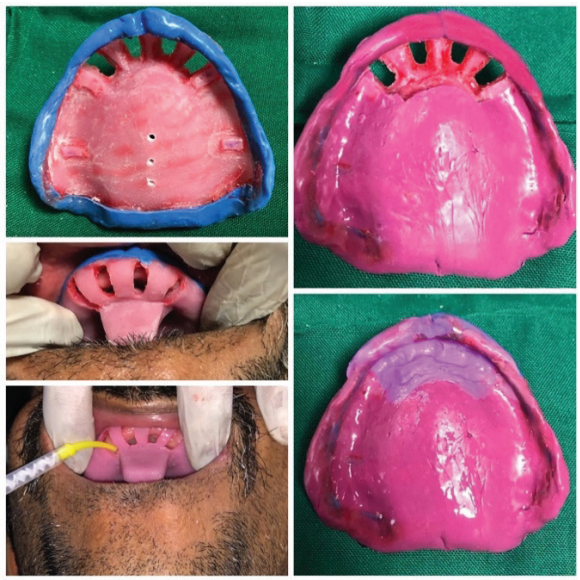

Figure 4: Secondary impression

Figure 5: Jaw relation and facebow transfer.

Figure 6: Teeth arrangement , Wax try in and. Denture insertion.

Discussion

Impression making plays a critical role in complete denture fabrication. The presence of a flabby tissue in the denture bearing area could present with problems. When utilizing a conventional impression technique to record such flabby tissues could often result in an unretentive and unstable denture. The Flabby ridges are compressed during conventional impression procedures. The elastic recoil of flabby fibrous tissue in its rest state results in the instability and loss of retention finally causing denture dislodgement. Hence, the need for an impression technique to record the flabby tissue in its anatomic form while recording the rest of the tissues in its functional form.

Several impression techniques and methods have been described for recording the flabby tissue during impression making. However, it is not proven to support that one particular impression technique will provide a stable and retentive denture on flabby ridges as compared to others.

Liddlelow et al[7] described a technique wherein two different impression materials are used in a custom tray ('plaster of Paris' over the flabby tissues, and zinc oxide and eugenol over the 'normal' tissues).

Osborne et al[8] described a technique where two separate impression trays and materials were used separately to record the 'flabby' and 'normal' tissues which is then related intraorally.

Watson et al[9] described the 'window' impression technique where a window or an opening is made over the flabby tissues on a custom tray. A mucocompressive impression is made using the custom tray and zinc oxide eugenol. Once set, it is removed, trimmed, and re-seated in the mouth. Through the window impression plaster is painted onto the flabby tissues. Once set, the entire impression is removed. However, special care needs to be taken when pouring a cast as the master impression is made with impression plaster.

Watt and McGregor[10] revisited by Lynch and Allen[11] described a technique where impression compound is applied to a modified custom tray. The impression compound is then manipulated to simultaneously compress the 'normal tissues', while avoiding displacement of the 'flabby tissues' using the same material and impression tray. A wash impression with zinc-oxide eugenol is made over this manipulated impression compound.

The advantage of our technique is that, there is no need to provide a window in the flabby tissue region. This design is incorporated during fabrication of the special tray itself thus, decreasing the clinical work time. The partial window design in this special tray supports the impression material. In addition, the slots provided in the anterior region and shows us exactly how much of impression material needs to be injected thus providing us a proper control and more patient comfort.

Prosthodontic management of flabby ridges are used in patients with medical conditions that do not allow for dental implant therapy or those who deny undergoing surgical intervention for correction of flabby tissue.

In this case, a metallic denture base was used for the maxillary complete denture. This is due to the fact that the patient presents with opposing natural teeth causing increased amount of amount of forces to be generated which could have been the causative factor for the patients previous denture to fracture. Hence, we planned to use a metallic denture base for this case.

Conclusion

This case report has described an innovative impression technique for the prosthodontic management of a denture bearing area containing flabby tissues. The materials used in this method are readily available and used in contemporary general dental practice. The time required for this specialized impression technique is not excessive. We conclude that this impression technique provides a stable and retentive denture for a flabby ridge.

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Conflict of Interest – Nil.

Ethical Clearance- Taken from Institutional Ethical committee M.G.R Educational and Research Institute.

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