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Modified impression technique for flabby ridge using sectional magnet retained custom tray

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Abstract

Alveolar ridges that are movable or extremely resilient, which become displaceable due to fibrous tissue deposition are known as fibrous or flabby ridges. These patients suffer from inadequate support, stability, and retention of a complete denture. Making final impression for these ridges often used window technique which involved painting of impression plaster for mucostatic recording of fibrous region but it is difficult to handle. This case report proposes a technique that uses the integration of magnets to fabricate a segmented custom tray to allow mucostatic impression for flabby ridge by polyvinylsiloxane light body material followed by wash impression with zinc oxide of the remaining palate.

Keywords: Flabby ridge impression technique, sectional custom tray, magnet retained custom tray

Introduction

A superficial region of movable soft tissue that affects the maxillary or mandibular alveolar ridges is called a fibrous or flabby ridge. It is a common occurrence in patients who wear dentures for extended periods of time, particularly in the maxillary anterior region, where hyperplastic soft tissue replaces the alveolar bone. This movable denture-bearing tissue can cause dislodgement of denture due to rebound effect if recorded in compressed form. The mobile tissue may get distorted as it is not capable of bearing stress from denture base^[1]. Flabby ridges affect the stability, support, and retention of complete dentures unless the tissue is properly handled and manipulated during impression procedure. So many treatment modalities are suggested in such cases including surgical removal of flabby mass, implant-supported dentures or conventional prosthesis without surgery^[2]. Treatment modality implementation is contingent upon the patient's medical status and needs, the degree of flabby tissue, patient's financial situation, and the prosthodontist's expertise^[3]. When constructing a complete denture, displacement of flabby tissues during the impression-making stage is a constant source of concern. Hypermobile tissues which are displaced during impression making tend to rebound, undergo ulceration and cause further bone resorption making fit of prosthesis difficult for patient. It also results in loss of retention, stability, support and gross occlusal disharmony of the prosthesis^[4]. In the conventional window technique, two separate impression materials such as zinc oxide eugenol impression paste for the normal tissues and impression plaster/low viscosity elastomeric for the flabby tissues are advocated. Due to use of two different materials in same tray, it is difficult to control flow and non-compatibility of material also present. This article's goal is to describe a case which utilized a sectional custom tray retained by magnets for ease of impression making in flabby regions.

Materials and Methods

A 55-year-old male patient reported to the Department of Prosthodontics, Crown & Bridge, Maulana Azad Institute of Dental Sciences. The patient's maxillary and mandibular arches were completely edentulous during intraoral examination. The premaxillary region extending from canine to canine in maxilla with a displaceable anterior flabby ridge was observed (Figure 1). A treatment plan was formulated to fabricate a complete denture with modification of the impression making technique to achieve minimum displacement of the tissue to ensure

maximum retention and stability of denture. A modified impression technique using magnet retained sectional custom tray and polyvinyl siloxane material for an impression of the flabby ridge was used. The technique is as follows:

1. A preliminary impression was made in an edentulous perforated stock tray with irreversible hydrocolloid impression (Flexiprint, Waldent) material to ensure minimal distortion of flabby tissue (Figure 2). The impression was poured in impression plaster.
2. (Type II, Kalabhai). The displaceable areas were identified on the cast (Figure 3).
3. On the maxillary cast, a spacer was applied along the mid-palatine raphe using modelling wax (DPI Modelling wax, India), with additional relief using a double spacer of 4 mm thickness in the flabby area (Figure 4).
4. Two 3 mm round neodymium magnets stacked one over other were inserted onto the ends of the double spacer, followed by the fabrication of an auto polymerizing resin sectional tray with a handle (DPI Cold Cure, India) (Figure 5-7).
5. The first segment of the segmented custom tray covering the flabby ridge area was covered with a separating agent (Vaseline, Unilever). The second half of the tray was then

6. constructed by layering magnets on top of the first component. (Figure 8-12).
6. Border moulding was performed using low-fusing impression compound (DPI Pinnacle Tracing Sticks, India) for maxillary custom tray using complete tray later followed by separation of segments. Spacer wax was removed and multiple holes were made in first segment of tray for adequate relief to tissues and to provide retention for impression material.
7. A wash impression was made for the first section using a Polyvinylsiloxane light body (Orikam Neopure A-Silicone, India) in the flabby ridge area. Labial frenum was used as a guide for correct positioning of tray. A wash impression was made with zinc oxide eugenol impression paste (DPI impression paste, India) for second part of sectional tray to record remaining denture bearing area. Final impression with both parts was united (Figure 13-17).

Remaining steps of denture fabrication including jaw relation, try in and denture insertion were performed (Fig 18-22). Patient was recalled at 24 hours, 1 week and 1 month. Patient was happy and satisfied with the dentures.





Fig 16: Wash Impression of first segment



Fig 19: Try In



Fig 21: Pre-Operative

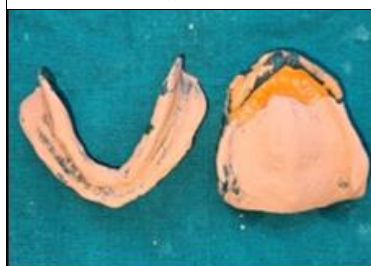


Fig 17: Final Impressions



Fig 20: Denture Delivery

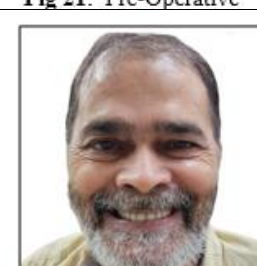


Fig 22: Post-Operative



Fig 18: Jaw Relation



Fig 21: Denture Delivery

Discussion

A properly performed prosthodontic technique can successfully treat flabby ridges, either by itself or in an interdisciplinary setting with surgery. The possibility of surgically eliminating flabby tissue exists if the bone height is sufficient. However, it results in short sulcus depth that further requires vestibuloplasty. Ridge augmentation is one way to address this, but there is always the possibility of graft rejection or resorption. It has been suggested that fibrosed and firm tissues can be achieved by injecting sclerosing chemicals, such as sodium morrhuate, into such fibrous tissues. However, adverse effects such as allergic reactions, patient discomfort, and loss of firmness have been documented with regard to these sclerosing drugs [5].

Dentures fabricated by conventional impression procedures to record such flabby tissues frequently become unstable and unretentive. By making windows, perforations, or wax reliefs, the hydraulic pressure is reduced while flabby areas are recorded, reducing the displacement or distortion of hypermobile tissues [6]. This case report discusses the modified impression technique to minimally displace the flabby tissue recording it in its undistorted form. This technique is more precise because it allows better control of material flow, ease of manipulation and excess material escapement from tray borders without any pooling [7]. Patients with flabby ridges most frequently report loosening of their prosthesis when it is in function. Elastomeric materials are chosen over zinc oxide eugenol impression paste or impression plaster because they are less brittle and less messy to use [8]. This modified impression technique can effectively treat patients whose medical circumstances prohibit them from receiving dental implant therapy or who refuse to

undergo invasive surgical intervention for the repair of flabby tissues.

Conclusion

Patients who are completely edentulous face challenges during their treatment due to flabby tissue. Surgical excision and dental implant therapy are options in such cases, but may not be feasible in patients with medical disease or high cost of treatment. Modifications in current impression techniques and introduction of new materials with improved physical and handling properties, flabby ridges can be managed effectively without any additional visits of patients in clinical practice.

Acknowledgement

Not available

Author's Contribution

Not available

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