

**A PRAGMATIC SOLUTION TO FLABBY RIDGE WITH SINGLELIGHT BODY IMPRESSION -: A CASE REPORT**Arya Aravind<sup>1\*</sup>, George Francis<sup>2</sup>, Mathew M. Alani<sup>3</sup>, Joyce Thomas<sup>4</sup>, Jasmin Cyril<sup>5</sup> and Jinson James<sup>6</sup><sup>1,5,6</sup>Post Graduate Student, Department of Prosthodontics, St. Gregorios Dental College, Chelad, Kothamangalam, Ernakulam.<sup>2</sup>Professor and HOD, Department of Prosthodontics, St. Gregorios Dental College, Chelad, Kothamangalam, Ernakulam.<sup>3</sup>Professor, Department of Prosthodontics, St. Gregorios Dental College, Chelad, Kothamangalam, Ernakulam.<sup>4</sup>Reader, Department of Prosthodontics, St. Gregorios Dental College, Chelad, Kothamangalam, Ernakulam.**\*Corresponding Author: Arya Aravind**

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**ABSTRACT**

Complete dentures rehabilitation in patients with flabby displaceable tissues is always a tough undertaking due to the compression and recoiling impact of the flabby ridges on pressure application and withdrawal leading to compromised denture retention & stability. Edentulous maxillary ridge & flabby anterior tissue opposing a mandibular natural dentition is the most commonly observed clinical scenario. Prosthodontic management of the flabby ridges basically involves different impression materials & modified techniques that help to record the tissue areas in a more relaxed state. This article presents a case report of making an impression in a maxillary flabby ridge using a simplified window technique with a light body elastomer in a practically effective way.

**KEYWORDS:** Flabby ridges, Window technique, Denture retention and Stability.**INTRODUCTION**

A fibrous or flabby ridge develops when a hyperplastic mobile soft tissue replaces the alveolar bone and is a common finding particularly in the upper anterior region of long term denture wearers and is considered a feature of the combination syndrome when occurs in the anterior part of maxilla opposed to natural dentition.<sup>[1,2,3]</sup> Early bone loss and flabby hyperplastic tissues in the anterior maxilla caused by functional masticatory loads exerted by mandibular anterior teeth on maxillary complete dentures,<sup>[4]</sup> leading to altered denture positioning & loss of peripheral seal. Forces exerted during the act of impression making can lead to distortion of the mobile tissue which in turn results in compromised denture stability.

Flabby tissues could be managed either surgical removal or by injecting a sclerosing agent prior to fabrication of complete denture<sup>1</sup> in addition to that surgical ridge augmentation is also proposed.<sup>[1,3,5,6,7,9,12]</sup> However, surgical excision will increase the bulk of denture material and eliminates stress absorbing soft tissues, leading to trauma of the underlying tissues.<sup>[14]</sup> Furthermore, conventional prosthodontic methods such as, special impression techniques and balancing of occlusal loads are more frequently employed in the

management of dentures with flabby ridges as an easy and simple practical solution.<sup>[1,14]</sup> Creating holes/ windows or wax reliefs decreases the hydraulic pressure while impressing flabby areas, thus minimizing the distortion/ displacement of hypermobile tissues. Utilizing these alternatives while making secondary impression can be useful in recording flabby tissues in their anatomic or undistorted form<sup>[11,13]</sup> although there has been a lot of controversy about the most suitable impression technique for flabby ridges, and recording tissues at rest is repeatedly found in the literature and has gained acceptance by many clinicians.<sup>[15,17,18,19]</sup>

Among the modifications described in the literatures there is no evidence of a standard technique which will provide stability and retention to the denture.<sup>[1]</sup> This case report presents a unique window technique for the impression of anterior maxillary flabby ridge using polyvinyl siloxane impression material.

**CASE REPORT**

A 63 years old female patient reported to Department of Prosthodontics and crown and bridge of St. Gregorios Dental College, Chelad, Kothamangalam, Ernakulam with broken upper teeth set and history of frequent fractures in the past years. Patient had lost her tooth due

to dental caries 20 years back and been a denture wearer since then.

Intraoral examination revealed that a completely edentulous maxillary arch with an opposing natural dentition in the mandibular arch (Figure-1). While examining the ridge support as well as ridge morphology, fibrous or flabby ridge was present in the



**Figure 1: Edentulous maxillary ridge.**

anterior maxillary ridge area (Figure-2). Treatment planning was done and decided to do a custom modified window technique to minimize the stress over the flabby ridges and then for the maximum strength of the denture we decided to give a stainless steel metal (MAARC Stainless Steel Dental Reinforcement Mesh - Golden, Packaging Type: Box, 100, Shiva products, Thane, Maharashtra) reinforcement in the denture.



**Figure 2: Flabby ridge area.**

#### Procedure

Preliminary alginate impression and the diagnostic cast were made. Flabby area was marked in the diagnostic cast extending from canine to canine region and a custom tray was fabricated on the diagnostic cast using auto

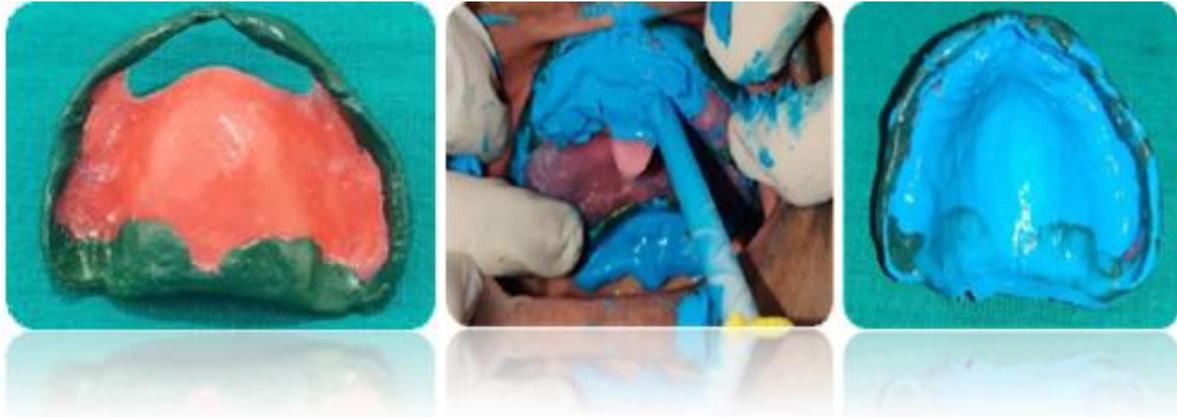
polymerizing acrylic resin (DPI-RR Cold Chemical Cure Polymer. Dental products of India, Mumbai, Maharashtra). The marked flabby area was kept open in the custom tray, that is a window was created in the custom tray in the flabby ridge area (Figure- 3).



**Figure 3: Custom tray with window.**

Border moulding of the maxillary arch made using greenstick (DPI- PINNACLE TRACING STICS- Dental Products of India- Mumbai, Maharashtra) (Figure-4). After bordermoulding the spacer wax were removed and relief holes were placed using round bur, one at the mid-palatine region and other two at the molar region on both sides. Tray adhesive where applied (ZHERMACK Universal Tray Adhesive 10ml, Dentsply Sirona, US). Light body polyvinyl siloxane impression material (PVS) (Dentsply Aquasil Ultra LV rubber base impression material, Dentsply, US) is loaded on to the border moulded custom tray without engaging the window area and inserted into the patient mouth. The flabby ridge area was immediately loaded directly with the light body

elastomeric impression material through the window while holding the tray with mild pressure. (Figure-5). After the setting of the impression additional layer of light body can be applied to gain sufficient thickness to the light body at window area to withstand deformation. (Figure-6). These way flabby areas were recorded at rest without any displacement.



**Fig. 4: Border moulding. Fig. 5: Secondary impression making. Fig. 6: Finished impression.**

After completing the jaw relation and try in the denture acrylised using heat cure acrylic resin (DPI Heat Cure Denture Base Material, Dental products of India, Mumbai, Maharashtra) incorporating stainless steel metal mesh (MAARC Reinforcement mesh) for

reinforcing the denture (Figure-7). Denture insertion was done. Minor occlusal correction was done during insertion. (Figure-8). Patient experienced an improvement in stability and retention of the new denture.



**Figure 7: Final metal reinforced denture. Figure 8: Post-operative picture.**

## DISCUSSION

An accurate impression of the edentulous ridge and functional sulcus is critical to the provision of a stable and retentive denture. Flabby ridges can be successfully treated with proper prosthodontic approach, either alone or in interdisciplinary combination surgical removal if there is adequate bone height. However, it results in short sulcus depth that further needs a small surgical intervention i.e. Vestibuloplasty. Sclerosing agents such as sodium morrhuate have been advocated to be injected in such flabby tissues making it firm and fibrosed with possible drawbacks of anaphylactic reactions, patient discomfort, and loss of firmness.<sup>[10]</sup> Magnusson et al, presented an impression technique using two different impression materials in a custom tray.<sup>[12]</sup> Watson et al<sup>[20]</sup> and Liddlelow et al<sup>[23]</sup> proposed a modified technique using window. Osborne et al proposed a technique using two different impression materials using two separate custom trays were utilized.<sup>[21]</sup> Moreover, a technique using impression compound in custom tray followed by a wash impression using zinc-oxide- eugenol was

described by Watt et al and McGregor et al.<sup>[22]</sup> This technique was recently re- evaluated with the use of polyvinylsiloxane (PVS) impression materials by Lynch and Allen.<sup>[7]</sup>

This case report discusses the window impression technique for recording flabby tissue in its undistorted form. This favors the health of oral tissues along with providing denture stability.<sup>[2]</sup> Loosening of prosthesis is the most commonly observed complaint from the patients. Usually it can be corrected with chair-side relining, but the viscous relining material further displaces the flabby tissue. This difficulty encountered is solved by described impression technique. Elastomeric materials are more preferred over zinc oxide eugenol impression paste or impression plaster, as they are less brittle and less messy to use. However, there is no significant difference in retention and stability obtained from both the material.<sup>[16]</sup>

## CONCLUSION

Instead following a particular method or a particular material the treatment plan for managing flabby ridges it should be always be customized to the extent and severity of the problem and adapted to the needs of the patients. There the success of our denture will be decided. Patients with medical conditions which don't allow dental implant therapy or those who deny undergoing invasive surgical intervention for correction of flabby tissues can be successfully managed by impression technique modifications.

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## REFERENCES

- Pai UY, Reddy VS, Hosi RN. A single step impression technique of flabby ridges using monophasic polyvinylsiloxane material: a case report. *Case reports in dentistry*, 2014; 27: 2014.
- Lynch CD, Allen PF. Case report: management of the flabby ridge: re-visiting the principles of complete denture construction. *The European Journal of Prosthodontics and Restorative Dentistry*, 2003; 1, 11(4): 145-8.
- Carlsson GE. Clinical morbidity and sequelae of treatment with complete dentures. *The Journal of prosthetic dentistry*, 1998; 1, 79(1): 17-23.
- McCord JF, Grant AA. Impression making. *British dental journal*, 2000; 188(9): 484-92.
- Lynch D, Allen PF. Quality of written prescriptions and master impressions for fixed and removable prosthodontics: a comparative study. *British dental journal*, 2005; 198(1): 17-20.
- Lynch CD, Allen PF. Management of the flabby ridge: using contemporary materials to solve an old problem. *British Dental Journal*, 2006; 200(5): 258-61.
- Lynch CD, Finbarr Allen P. The 'combination syndrome' revisited. *Dental Update*, 2004; 2, 31(7): 410-20.
- Bansal R, Kumar M, Garg R, Saini R, Kaushala S. Prosthodontic rehabilitation of patient with flabby ridges with different impression techniques. *Indian journal of dentistry*, 2014; 5(2): 110.
- Chakarvarty K, Tomar SS, Tandan P, Modi R. Managing flabby tissue with different impression techniques: a case series. *IJOCD*, 2015; 3: 95-9.
- Desjardins RP, Tolman DE. Etiology and management of hypermobile mucosa overlying the residual alveolar ridge. *The Journal of Prosthetic Dentistry*, 1974; 1, 32(6): 619-38.
- Kelly E. Changes caused by a mandibular removable partial denture opposing a maxillary complete denture. *The Journal of Prosthetic Dentistry*, 1972; 1, 27(2): 140-50.
- Xie Q, Närhi TO, Nevalainen JM, Wolf J, Ainamo A. Oral status and prosthetic factors related to residual ridge resorption in elderly subjects. *Acta Odontologica Scandinavica*, 1997; 1, 55(5): 306-13.
- Allen PF. Management of the flabby ridge in complete denture construction. *Dental update*, 2005; 2, 32(9): 524-8.
- Crawford RW, Walmsley AD. A review of prosthodontic management of fibrous ridges. *British dental journal*, 2005; 199(11): 715-9.
- MacEntee MI. *The complete denture: a clinical pathway*. Quintessence Publishing (IL), 1999.
- Appelbaum EM, Rivetti HC. Wax base development for complete denture impressions. *The Journal of Prosthetic Dentistry*, 1985; 1, 53(5): 663-7.
- Boucher CO. A critical analysis of mid-century impression techniques for full dentures. *The Journal of prosthetic dentistry*, 1951 Jul 1; 1(4): 472-91.
- Klein IE, Broner AS. Complete denture secondary impression technique to minimize distortion of ridge and border tissues. *The Journal of prosthetic dentistry*, 1985; 1, 54(5): 660-4.
- Devan MM. Basic principles in impression making. *Journal of Prosthetic Dentistry*, 2005; 1, 93(6): 503-8.
- Magnusson BC, Engström H, Kahnberg KE. Metaplastic formation of bone and chondroid in flabby ridges. *British Journal of Oral and Maxillofacial Surgery*, 1986; 1, 24(4): 300-5.
- Osborne J. Two impression methods for mobile fibrous ridges. *Br Dent J*, 1964; 117(6): 392-4.
- Watt DM, MacGregor AR. *Designing complete dentures*. WB Saunders Company, 1976.
- Liddelow, K.P., *The prosthetic treatment of the elderly*. *B. Dent. J.*, 1964; 117: 9.
- Antonelli J, Guerrero M, Georgescu M, Ortiz J. Quantifying Flabby Ridge Tissue Displacement During Impression-Making for Patients with Combination Syndrome. *Compendium*, 2019; 40(8).
- Thomas S. Complete denture impression techniques for resorbed ridges: a. Bindhoo YA, Thirumurthy VR, Kurien A. Complete mucostatic impression: a new attempt. *Journal of Prosthodontics: Implant, Esthetic and Reconstructive Dentistry*, 2012; 21(3): 209-14.
- Allen PF, McCarthy S. *Complete dentures: from planning to problem solving*, 2003.
- Hyde TP, Craddock H, Brunton P. The effect of seating velocity on pressure within impressions. *The Journal of Prosthetic Dentistry*, 2008; 1, 100(5): 384-9.
- Zinner ID, Sherman H. An analysis of the development of complete denture impression techniques. *The Journal of prosthetic dentistry*, 1981; 1, 46(3): 242-9.
- Watson RM. Impression technique for maxillary fibrous ridge. *British dental journal*, 1970; 2, 128(11): 552.
- Ahmad F, Yunus N, McCord F. A new presentation of combination syndrome. *Annals of Dentistry University of Malaya*, 2008; 31, 15(2): 94-9.
- Fokkinga WA, Witter DJ, Bronkhorst EM, Creugers

- NH, Creugers NH. Clinical Fit of Partial Removable Dental Prosthesis Based on Alginate or Polyvinyl Siloxane Impressions. *International Journal of Prosthodontics*, 2017; 1: 30(1).
32. Polychronakis N, Zissis A, Sotriou M. The management of flabby ridge in impression making for a complete denture. *Stomatologos*, 2010; 67: 171-6.
33. Imbery TA, Evans DB, Koeppen RG. A new method of attaching cast gold occlusal surfaces to acrylic resin denture teeth. *Quintessence International*, 1993; 1, 24(1).