

## Prosthodontic rehabilitation of patients with flabby ridges

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### Abstract

Rehabilitation of a completely edentulous patient with flabby tissue is a testing situation for a Prosthodontist. Flabby ridge is a common clinical finding affecting the alveolar ridges of the maxillary and mandibular arches, where hyperplastic soft tissue replaces the alveolar bone. Anterior region of maxilla is the most affected especially in cases where there are remaining natural teeth present in mandibular arch. Flabby ridges present a scrupulous difficulty and may give rise to complain of pain/looseness relating to the complete denture that rest on them. Forces exerted during the act of impression making can result in distortion of the mobile tissues. Dentures on flabby ridges have compromised stability, support and retention unless adequate measures for its management are employed. Methods applied for flabby tissue management include surgical removal and augmentation, special impression techniques such as window technique, balanced distribution of occlusal loads.

This paper presents two case reports for prosthodontics rehabilitation of patient with flabby ridge using Window technique.

**Keywords:** Flabby ridge, Window technique.

### Introduction

The success of complete denture prosthesis is often a reflection of its retention, stability and support offered during its usage in function.<sup>1</sup> The quality of the prosthesis is best weighed by its virtue of preserving the remaining tissues. In spite of delivering a good prosthesis, poor maintenance and inadequate tissue rest and lack of patient co-operation to attend the recall visits can cause extensive damage over time. One such sequelae is replacement of alveolar bone by hyperplastic soft tissues termed as 'flabby' ridge.<sup>2</sup>

The glossary of prosthodontics terms define flabby tissue as excessive movable tissue.<sup>3</sup>

Combination syndrome has features such as resorption in anterior maxillary region, tilting of occlusal plane anteriorly upward and posteriorly downward, formation of epulis fissuratum, fibrous overgrowth of maxillary tuberosity, decrease in vertical dimension, supra erupted lower anteriors.<sup>4</sup>

Earlier studies show that prevalence of flabby ridges varies in either arch, with edentulous maxillae prevalence being 24% and edentulous mandibles 5%.<sup>5</sup> Another reason for flabby tissue is unplanned and uncontrolled dental extraction.<sup>6</sup>

The hyperplastic soft tissues fails to provide adequate support making the prosthesis progressively unstable. This causes displacement of underlying soft tissues during function leading to altered denture position, loss of peripheral seal, loss of stability, compromised esthetics and function.<sup>7</sup> In extreme cases, pain results as the mucosa becomes pendulous and often gets pinched between the denture and spinous alveolar ridge.<sup>8</sup>

The color and texture of the tissues are similar to that of normal unless swollen. Thorough palpation reveals freely movable tissue that is rolled or pendulous.

Construction of dentures over flabby foundation poses a great challenge to a prosthodontist. So many therapies that are suggested in such cases include surgical excision of flabby mass, implant-supported dentures or conventional prosthesis without surgery.<sup>9</sup> Implementation of treatment modality depends on medical health and requirement of the patient, extent of flabby tissue, financial burden on patient and skill of the prosthodontist.<sup>10</sup>

Hypermobile tissues which are displaced during impression making tend to return to their undistorted form, making fit of prosthesis difficult for patient. Also results in loss of retention, stability, support and gross occlusal disharmony of the prosthesis.<sup>11</sup>

In the first case report, complete denture is constructed over the flabby maxilla using window technique and in the second, maxillary denture is fabricated using window technique over edentulous mandible.

### Case 1

A 54 year old male patient reported to the Department of Prosthodontics, Crown & Bridge, Oral Implantology for the fabrication of complete denture. Intraoral examination revealed completely edentulous maxillary and mandibular arches with flabby tissue present in the anterior region of the maxillary arch [Fig. 1]. The treatment plan was to fabricate complete denture using the window technique for the flabby tissue. The preliminary impression of the maxillary arch was made using impression compound (Y-DENTS impression compound) and mandibular arch impression was made using Admix technique (impression compound and low fusing green stick compound) (DPI Pinnacle) [Fig. 2]. Preliminary impressions were poured in plaster of paris. Flabby tissue was marked on the cast using indelible pencil and custom made tray was fabricated using auto polymerizing acrylic resin (Cold Cure Denture Base Material, PYRAX, Rapid Repair).

The portion of the flabby tissue was cut from the custom tray and checked in the patients mouth [Fig. 3]. Border molding was done with low fusing green stick compound (DPI Pinnacle) and final impression was made with zinc oxide eugenol impression material (DPI Impression Paste, Dental Products of India) [Fig.4]. The impression of the flabby tissue was made using light body addition silicone impression material (Aquasil Ultra) [Fig. 5]. Border molding and final impression of the mandibular arch was made respectively. Master casts were poured in dental stone (Kalstone, Kalabhai Karson Pvt. Ltd., India). Rims were fabricated and jaw relation was recorded [Fig. 6]. Shade selection and trial was done [Fig. 7]. Dentures were inserted in the patient mouth and instructions regarding denture care, its hygiene and maintenance were given [Fig. 8].

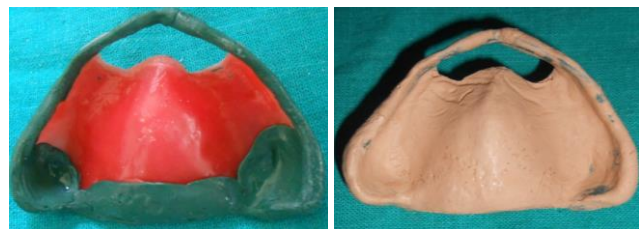


Fig. 4: Border molding and final impression



Fig. 5: Impression of the flabby tissue



Fig. 1: Flabby tissue in maxillary



Fig. 6: Jaw relation



Fig. 2: Preliminary impressions anterior region



Fig. 7: Try-In

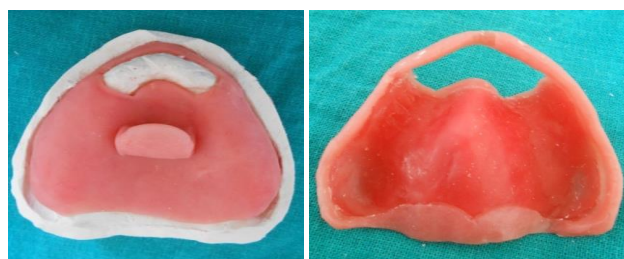


Fig. 3: Custom made tray



Fig. 8: Insertion



## Case 2

A 50 year old male patient reported to the Department of Prosthodontics, Crown & Bridge, Oral Implantology with the chief complaint of difficulty in chewing. Intraoral examination revealed completely edentulous upper arch with flabby tissue present in the anterior region and dentulous lower arch. [Fig. 1]. The treatment plan was to fabricate denture for maxillary arch using the window technique for the flabby tissue. The preliminary impression of the maxillary arch was made using impression compound (Y-DENTS impression compound) [Fig. 2]. Preliminary impression was poured in plaster of paris. Flabby tissue was marked on the cast using indelible pencil and custom made tray was fabricated using autopolymerizing acrylic resin (Cold Cure Denture Base Material, PYRAX, Rapid Repair). Border molding was done with low fusing green stick compound (DPI Pinnacle). The portion of the flabby tissue was cut from the custom tray and checked in the patients mouth [Fig. 3]. Final impression was made with zinc oxide eugenol impression material (DPI Impression Paste, Dental Products of India). The impression of the flabby tissue was made using light body addition silicone impression material (Aquasil Ultra) [Fig. 4]. Master cast were poured in dental stone (Kalstone, Kalabhai Karson Pvt. Ltd., India). Rim was fabricated and bite registration was recorded. Shade selection and trial was done [Fig. 5]. Denture was inserted in the patient mouth and instructions regarding denture care, its hygiene and maintenance were given [Fig. 6].



Fig. 1: Flabby tissue in the anterior maxilla



Fig. 2: Preliminary impression

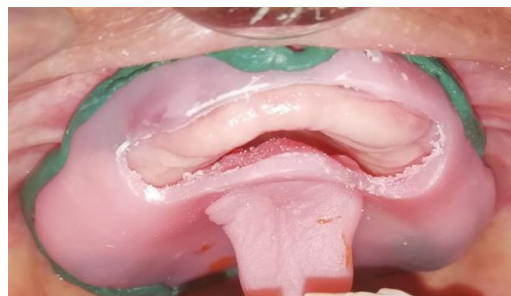


Fig. 3: Border molding

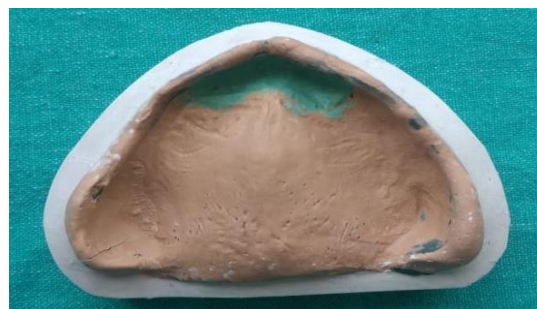


Fig. 4: Final impression



Fig. 5: Try In



Fig. 6: Insertion

## Discussion

Flabby ridge also called as fibrous ridge or displaceable ridge is mobile soft tissue present on the superficial aspect of the alveolar ridge. Ellsworth Kelly in 1972 reported that mandibular anterior teeth cause trauma to maxillary anterior ridge as all occlusal forces are directed on to this area. This results in loss of bone from the anterior maxilla with subsequent fibrous tissue hyperplasia. The mucosa is highly movable and loosely attached to underlying periosteum of the bone. This flabbiness, comprised of loose fibrous and

dense collagenized connective tissue, is usually seen in anterior region of an edentulous mouth.<sup>12</sup>

Prosthetic literature has documented various impression techniques for overcoming the problem of the flabby ridge. Magnusson et al described a technique where two impression materials are used in a custom tray using zinc.

oxide and eugenol over the normal tissues and impression plaster over the flabby area.<sup>13</sup> Crawford et al described a two-tray impression technique where two trays are fabricated and impression is recorded with two different materials and is then oriented intra orally.<sup>14,15</sup>

Osborne described the “window” impression technique with a custom tray made with a window over the flabby tissues. A mucocompressive impression is first made of the normal tissues with zinc oxide and eugenol using a custom tray. Once set, a low viscosity mix of impression plaster is then painted onto the flabby tissues through the window. Once set, the entire impression is removed.<sup>16</sup> Watt and McGregor, recently revisited by Watson, described a technique where impression compound is applied to a modified custom tray. The thermoplastic properties of this material are then manipulated to simultaneously compress the “normal tissues,” while avoiding displacement of the “flabby tissues” using the same material and impression tray. Over this manipulated impression compound, a wash impression with zinc oxide and eugenol is made. While this impression technique is clearly less complex than the previous three described, the problem with all four techniques is that they rely on materials such as impression plaster, impression compound, and zinc oxide and eugenol.<sup>16</sup>

Zafrulla Khan et al<sup>17</sup> described the window technique in which a primary impression was made, cast poured and an indelible pencil was used to outline the unsupported movable tissue. A single custom tray was fabricated and an opening was cut in the tray, modeling plaster adapted bilaterally on the posterior aspect to act as handles. Tray adjusted and routine border moulding was done in the mouth. Tray was painted with an adhesive and regular body was used to make final impression, excess material was trimmed from the opening. The impression was placed back in the mouth and unsupported movable tissue was recorded by brushing on impression plaster which is a highly mucostatic impression material. Separating medium was applied on the impression plaster and master cast was poured.

On comparison with routine impression procedure and the window technique impression, the routine impression cast showed distortion and compression of the pliable tissues whereas the window technique impression cast showed minimal distortion.

## Conclusion

A good impression is mandatory for good prosthetic service. However there are certain compromised conditions like flabby ridge, resorbed ridge where the skill and knowledge

of dental practitioner is relentlessly tested. Fibrous ridge create a prosthetic challenge for the triumph of stable and retentive dental prosthesis. Emphasis has moved away from surgical removal of the fibrous tissue. Implant supported prosthesis may not be the most appropriate treatment option for many patients.

Implementation of some modification in current impression technique and newly introduced materials with improved physical and handling properties, flabby ridge can be treated effectively without any additional visits of patient in clinical practice.

**Conflict of Interest:** None.

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