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## Case Series

## Prosthodontic way of overcoming the hurdle of flabby tissues: A case series

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## ABSTRACT

Flabby ridges displaceable tissues are a common finding in long term denture wearers. Careful management is mandatory, failing which flabby ridges adversely affect the retention, stability and support of complete dentures. Management of flabby ridges can be driven either surgically or prosthodontically. A list of techniques has been noted in the literature for prosthetically managing flabby tissues such as Zafarullah Khan Technique, modified Zafarullah Khan Technique, Shum & Pow Technique, Hobkirk's Technique, Palatal splinting using two part tray technique, etc. The decision to consider which material & or technique is appropriate depends on the particular clinical situation. Moreover, the advent of newer dental materials has added to this confusion. The proper diagnosis and planning is required for selecting the material and technique according to the displaceability of the tissues. This article describes a series of clinical scenarios, incorporating these impression techniques and materials for managing the condition.

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## 1. Introduction

Mobile or resilient tissues over the underlying supportive bone appears as “flabby tissues”. Such a situation arises in long term complete denture wearers where excessive pressure has been applied on the alveolar bone & is most commonly seen in maxillary anterior region usually in correlation with Combination syndrome.<sup>1</sup>

Management of flabby ridges can be either-1. Surgical removal of fibrous tissue before conventional procedures 2. Implant retained Prosthesis (Fixed/ Removable). 3. Conventional prosthodontics without surgical intervention.<sup>2</sup>

Prosthodontic rehabilitation of compromised ridges in conventional manner stands as an outdated treatment option. A customised treatment procedure must be considered for each clinical scenario. Flabby tissues, because of their resilient nature, get displaced while impression making, thus displacing the final prosthesis. Hence, the need for recording

the tissues in a state of rest is the basis on which these impression techniques have been developed. Thus, selection of proper impression technique and material is a crucial decision while fabricating dentures on such abused tissues.

A list of techniques has been noted in the literature for prosthetically managing flabby tissues such as conventional & modified Zafarullah Khan Technique,<sup>3</sup> Shum & Pow technique,<sup>4</sup> Hobkirk's technique,<sup>4,5</sup> etc. Selection of appropriate technique & material depends on the particular clinical scenario and necessitates a thorough knowledge about the pros and cons of each technique and material. Continued advancement of dental materials have added to this confusion.

This article describes a series of three clinical cases, which incorporated Zafarullah Khan technique with combination of tunnel technique, Modified zafarullah Khan technique and Shum & Pow technique for managing this condition.

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## 2. Case Series

### 2.1. Case 1

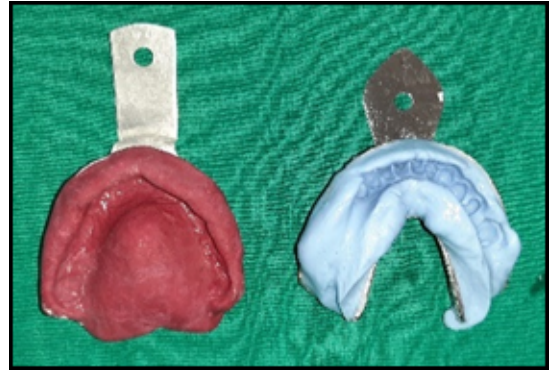
A 52-year-old female patient reported to the Department of Prosthodontics with the chief complaint of an ill-fitting complete denture since 6 months, which she had been wearing for 3 years. Patient gave a history of fabrication of immediate denture 3 years back. On intraoral examination maxillary anterior ridge had Grade 2 flabby tissue from incisor to canine region in first quadrant (Figure 1). Various treatment modalities such as surgical excision of flabby tissues followed by implant supported/retained prosthesis or complete denture fabrication using modified impression techniques were explained to the patient. Keeping the financial constraints in mind, a complete denture was planned using modified impression technique for maxillary arch and removable partial denture in mandibular arch was opted. Since there was considerable displaceability of tissues, Modified Window technique for maxilla was selected.

1. Preliminary impression of maxillary arch & mandibular arch were made with & poured to obtain diagnostic casts (Figure 2).
2. Partial coverage T spacer, was adapted on the diagnostic maxillary cast. A custom tray was fabricated over the spacer.
3. Border moulding was done using low fusing impression compound (Figure 3).
4. A window was cut in the custom tray & was resealed on the ridge exposing the flabby tissues through the window (Figures 4 and 5). ZOE impression material was loaded prior in the tray, followed by light body elastomeric material which was then injected over the flabby tissue (Figures 6 and 7).
5. The further steps were conventionally followed in denture fabrication.

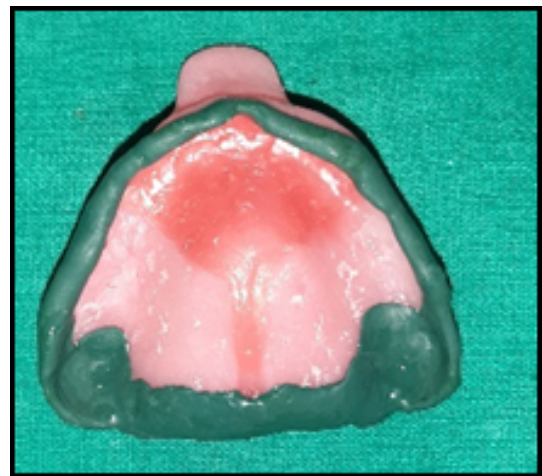
No complications were reported in the subsequent recalls.



**Fig. 1:** Intraoral view of maxillary arch



**Fig. 2:** Diagnostic impression of both arches



**Fig. 3:** Border moulding of maxillary arch



**Fig. 4:** Window cut in tray



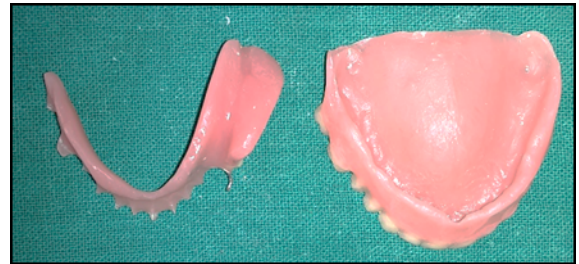
**Fig. 5:** Resealed tray in the oral cavity



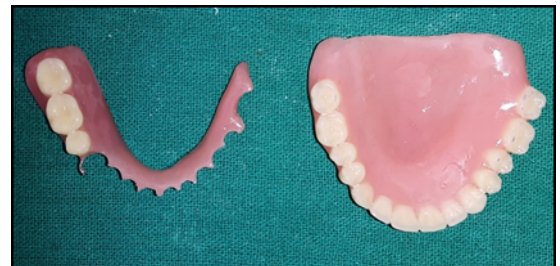
**Fig. 8:** Final impression



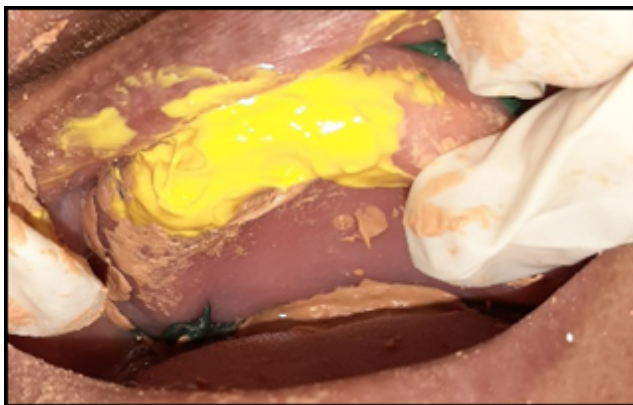
**Fig. 6:** Application of light body material in the flabby area



**Fig. 9:** Intaglio surfaces of dentures



**Fig. 10:** Cameo surfaces of dentures



**Fig. 7:** Final impression being made



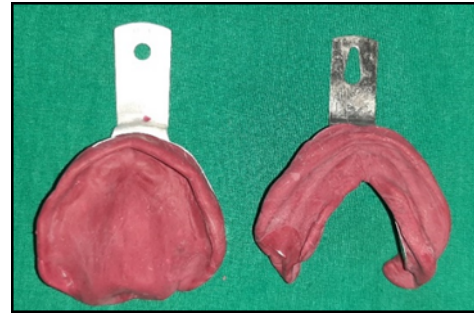
**Fig. 11:** A): Before insertion; B): After insertion

## 2.2. Case 2

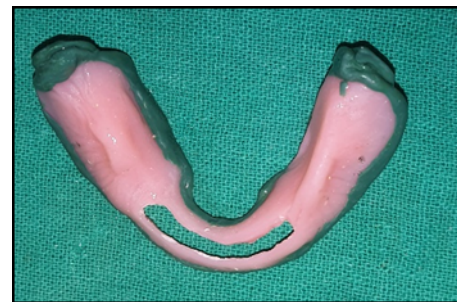
An 82-year-old male patient came to the Department of Prosthodontics with the chief complaint of loose lower complete denture since 3-4 months. Existing denture was fabricated 10 years ago. Clinical examination revealed Grade 2 flabby mandibular ridge from first premolar in the third quadrant to first premolar in the fourth quadrant region (Figure 12). Here, conventional Window technique in combination with tunnel technique was planned due to the significant degree of displaceability. Since the maxillary ridge was in a healthy state, a conventional maxillary complete denture was planned.

1. Primary impression of maxillary and mandibular arch was made with impression compound material (Figure 13) and diagnostic cast was poured.
2. Custom tray was fabricated over a full spacer on the mandibular diagnostic cast.
3. Border moulding of maxillary arch was performed followed by (DPI Pinnacle tracing sticks, Bombay trading corporation Ltd.) a ZOE wash impression (Coltene, Coltene Whaledent Pvt. Ltd.). (Figure 19)
4. Following border moulding of mandibular arch a window was cut over the flabby ridge area (Figures 14 and 15). Impression plaster was painted over the flabby ridge in increments ensuring that the flabby ridge was not compressed and final impression was recorded (Figures 16, 17 and 18).

Further conventional steps of denture fabrication were carried out. The patient was satisfied with the fit of the final denture.



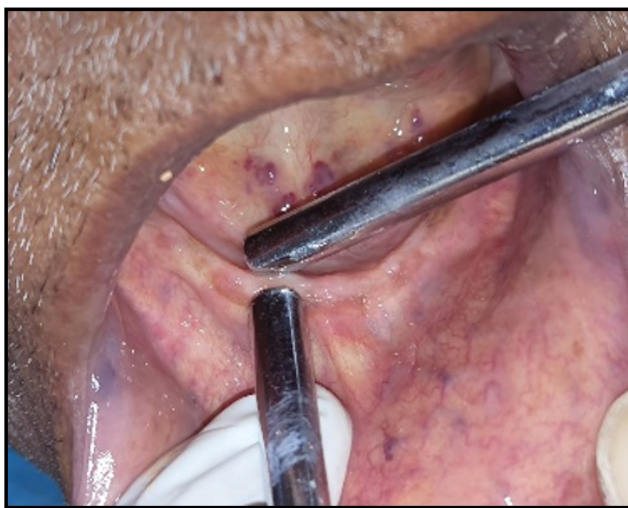
**Fig. 13:** Diagnostic impression of maxillary & mandibular arches



**Fig. 14:** After border moulding window is cut in the tray



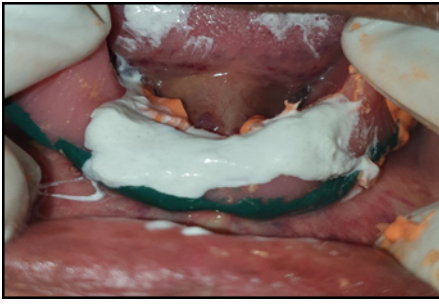
**Fig. 15:** Tray is reinserted in the oral cavity



**Fig. 12:** Flabby tissue in the mandibular arch



**Fig. 16:**



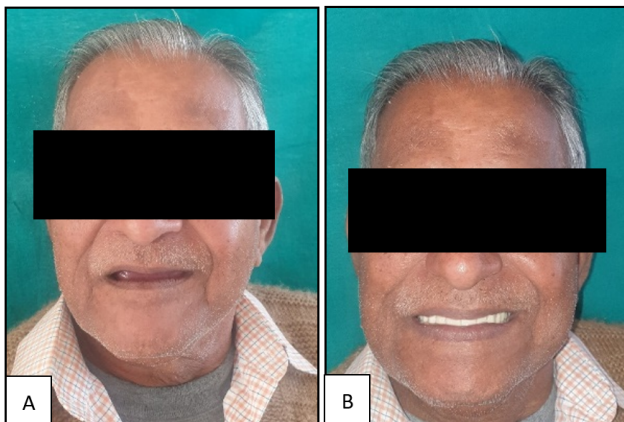
**Fig. 17:**



**Fig. 18:** Final impression



**Fig. 19:** Final impression

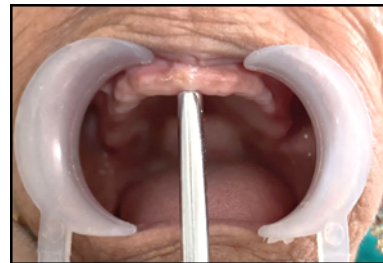


**Fig. 20:** A): Before insertion; B): After insertion

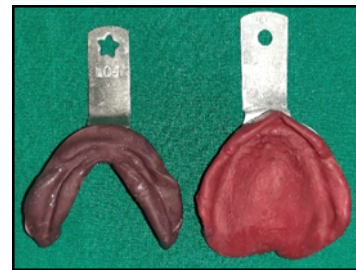
### 2.3. Case 3

A 65-year-old female reported to the Department of Prosthodontics with the chief complaint of an ill-fitting denture which was fabricated 4 years back. Intraoral examination revealed completely edentulous Order V resorbed mandibular ridge and completely edentulous maxillary ridge with Grade 1 classification of flabby tissues over the anterior region (Figure 21). Therefore, double spacer with multiple perforation impression technique was employed which offered minimal tissue distortion.

1. Primary impression of maxillary arch was made with impression compound. As the mandibular ridge was resorbed an admixed impression was made. (Figure 22).
2. Double wax spacer was adapted in the region of flabby tissue and a self-cure acrylic special tray was fabricated on the spacer (Pyrax acrylic self-cure, Pyrax polymers, Rookee) (Figure 23).
3. After border moulding with low fusing tray compound (DPI Pinnacle tracing sticks, Bombay trading corporation Ltd.) spacer wax was removed and multiple vent holes were created over the flabby ridge tissues. Wash impression was made with medium body addition silicone material (Figure 24). Further conventional steps were carried out followed by denture insertion.



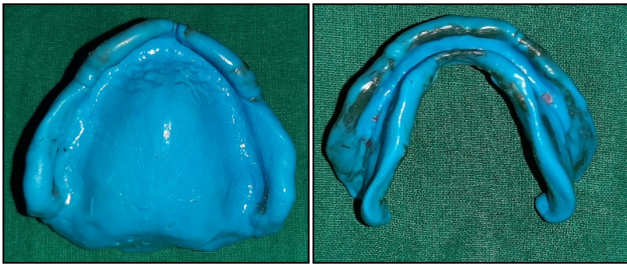
**Fig. 21:** Intraoral view of maxillary arch



**Fig. 22:** Diagnostic impression of both arches



**Fig. 23:** Border moulding of maxillary arch



**Fig. 24:** Single step final impression made with medium body elastomeric material of maxillary & mandibular arches



**Fig. 25:** A): Before insertion; B): After insertion

### 3. Discussion

Recording an edentulous ridge can be a challenge when the residual ridges present with problematic conditions, such as minimum bone height & non-adherent mobile mucosa. Old denture wearers are the ones who most commonly encountered with this problem.<sup>1</sup> Other factors could be load concentration on the anterior segment of the ridge, rapid ridge resorption, Combination Syndrome.

Not all patients can proceed with invasive procedures like implant placement, sinus lift procedures, etc. As a result, the management in the prosthetic field is the only way to handle such tissues to obtain stable & retentive dentures.

Flabby tissues need to be recorded in a mucostatic state i.e. in state of rest. Impression techniques and impression

materials are the only two factors that can combat this situation conservatively. Particular or individualized impression techniques, in the case of flabby ridges, do not involve additional knowledge, but only fundamental knowledge of the biodynamics of complete dentures. Since the early 1960's, different techniques utilizing a combination of materials have been noted in the literature. Such as in Liddlelow's two part impression technique<sup>6</sup> incorporates zinc oxide eugenol in the mucostatic areas and displaceable tissues with liquid plaster of paris.

Selection of appropriate impression technique is the most crucial factor in its management. Before selection one should be well verse with the advantages, disadvantages of each technique. Zafarullah Khan Technique offers less basic chair time, doesn't require fabrication of two custom trays, minimum distortion of edentulous arches & enables visualization of the impression making of the unsupported movable tissues. But this is technique-sensitive & a cumbersome procedure to be carried out. To overcome this disadvantage a modified version of this technique was developed, which replaced the Impression Plaster by light body elastomeric material. The advantage was that a more precise impression of hypermobile tissues was obtained & the technique was less cumbersome to carry out.<sup>1</sup> The Shum & Pow technique is a single step impression procedure with a medium body elastomeric material. This therefore requires the least amount of chair time, comfortable for the patient, doesn't require fabrication of two custom trays, least distortion of edentulous arches as compared to other materials.

In this present article, Case 1 shows utilization of Modified Zafarullah Khan technique with light bodied elastomeric material, Case 2 shows utilization of Zafarullah Khan Technique with impression plaster and tunnel technique, Case 3 shows utilization of Shum & Pow technique with double wax spacer. Techniques mentioned above all have their respective advantages & disadvantages and no technique can be considered superior to other. Thus combining different techniques would add up all the advantages and would help us achieve the desired outcome. Though all these techniques yielded satisfactory retention and stable dentures, the Shum & Pow technique was easier to use, comfortable for the patient and thus an accurate impression was achieved.

### 4. Conclusion

Achieving stability and retention in fibrous ridges still remains a prosthodontic hurdle even after the advent of implant retained treatment options. Mucostatic impression making with customised trays is the better solution. This has led to the development of an array of techniques & materials by different authors. However, there is a lack of scientific evidence for support of any technique over the other. Therefore, as a prosthodontist our aim should be to

obtain a stable, retentive & a compression-free complete denture prosthesis using appropriate impression techniques & materials.

### 5. Source of Funding

None.


### 6. Conflict of Interest

None.

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