

Prosthetic Rehabilitation of Edentulous Flabby Ridge using Modified Hobkirk Window Impression Technique: A Case Report

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KEYWORDS

Complete denture, Flabby ridge, Window technique, Selective Pressure impression

ABSTRACT

Mobile denture-bearing tissues in the form of flabby ridges are susceptible to displacement under masticatory forces, leading to loss of peripheral seal. Conventional impression-making techniques may record the mobile tissue in a distorted state, adversely affecting the retention and stability of the definitive prosthesis. Hence, this case report describes a modified impression technique used to record the flabby edentulous ridge in an undisplaced state to avoid compression and rebounding of the mobile tissue. A 49-year-old male patient reported to the Department of Prosthodontics complaining of difficulty in chewing food due to missing teeth for the past one year. Intraoral examination revealed the healed edentulous ridges with flabby, displaceable tissue on the residual ridge crest with respect to the anterior segment in both maxillary and mandibular arches. Prosthetic rehabilitation using removable complete denture prosthesis was planned with definitive impressions made using modified Hobkirk technique. A modified impression technique used to record the flabby edentulous ridge in an undisplaced state to avoid compression and rebounding of the mobile tissue gave a satisfactory outcome. This technique is simple to implement and adheres to the principles of preventive prosthodontics. Periodic follow-up showed that the patient was satisfied with the prosthesis.

INTRODUCTION

Flabby tissues or hypermobile tissues in the denture-bearing area are associated with pain and displacement of the removable prosthesis during use if the conventional impression techniques are employed for recording these tissues. Definitive prostheses fabricated based on such impressions may ultimately be ill-fitting [1]. Hence a modification of the impression technique is required such that there is compression of non-displaceable tissues to get adequate support, stability, and retention in the definitive prosthesis [2,3]. This article aims to describe a technique for making impressions of denture-bearing areas containing flabby mucosa, which uses a modified

window technique with commonly employed impression materials.

CASE REPORT

A 49-year-old male patient reported to the Department of Prosthodontics complaining of difficulty in chewing food due to missing teeth for the past one year. Extraoral examination revealed a grossly symmetrical face with unsupported lips (Figure 1 A-C).

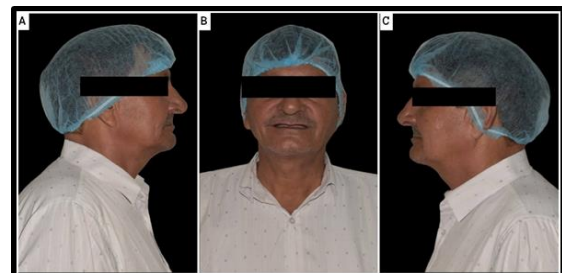


Figure 1 A-C Pre-rehabilitative extraoral profile views

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Intraoral examination revealed the healed edentulous ridges with presence of flabby, displaceable tissue on the residual ridge crest with respect to the anterior segment in both maxillary and mandibular arches (Figure 2 A-D). A diagnosis of completely edentulous maxillary and mandibular arches with flabby mucosa in the anterior segment was made.

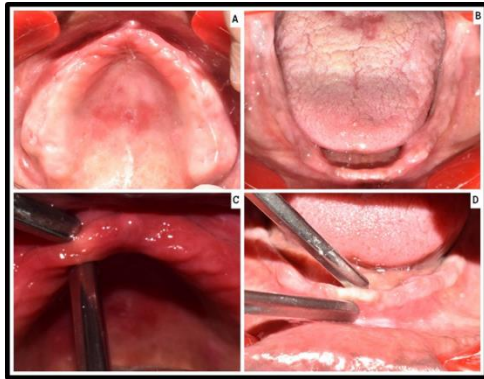


Figure 2 Pre-rehabilitative intraoral views of A. maxillary and B. mandibular arches. Demonstration of flabby tissues in C. maxillary and D. mandibular arches

The patient had been counseled regarding various treatment options for prosthetic rehabilitation that included both removable mucosa-borne complete dentures and implant-supported overdentures as well as implant-supported fixed prostheses. Taking into consideration the financial condition of the patient, prosthetic rehabilitation by means of complete dentures fabricated using the modified Hobkirk technique was planned and patient's consent was taken. Primary impression of both arches were made and the primary casts were poured in dental plaster (Kaldent, Kalabhai Carson Pvt. Ltd. Mumbai, India) (Figure 3 A-B).

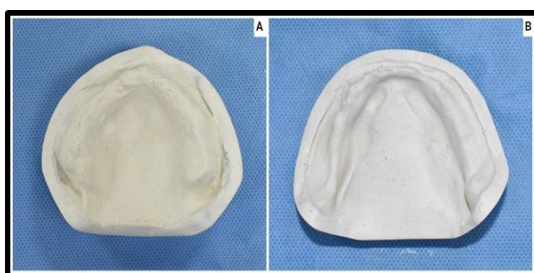


Figure 3 Primary A. Maxillary, and B. Mandibular casts

The area of the flabby ridge was assessed, demarcated and transferred on the primary cast. Border molding was done using the conventional technique and a window was cut in the anterior segment of both custom trays as per the demarcated flabby ridge (Figure 4 A-B).

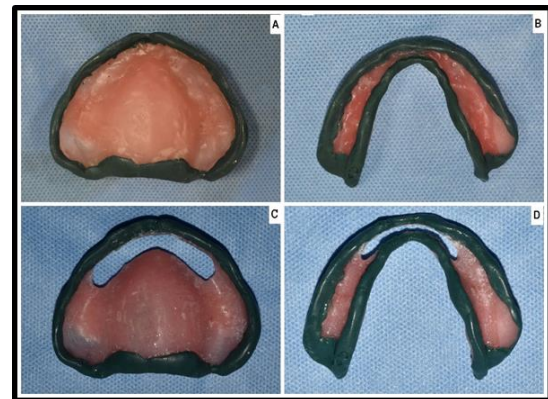


Figure 4 A-B Border molded maxillary and mandibular custom trays, C-D Windows created in the anterior segment of custom trays

Secondary impression was made using non-eugenol-based zinc oxide impression paste (Image, Prime Dental, Delhi, India) and part of the impression encroaching the windows was carefully removed and the tray repositioned in the oral cavity of the patient. A mucostatic impression of the flabby ridge was made by injecting light body addition silicone impression material (Neopure A-silicone, Orikam Healthcaere India Pvt. Ltd. Gurugram, India) through the prepared window (Figure 5 A-F).

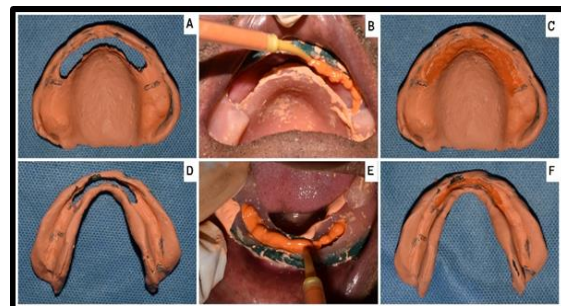


Figure 5 A-C Impression made using Zinc oxide impression paste, Recording of mucostatic impression using light body addition silicone, definitive impression of maxillary arch; D-F Same, for the mandibular arch

The master casts were poured in dental stone (Labstone, Kalabhai Carson Pvt. Ltd. Mumbai, India) (Figure 6 A-B).

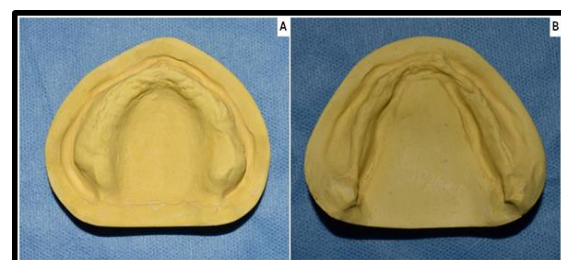


Figure 6 Definitive A. Maxillary and B. Mandibular cast.

Maxillomandibular relations were recorded and try-in was done (Figure 7 A-F). Denture processing was done using compression molding technique, and denture was finished and polished. The denture was delivered to the patient with instructions on maintenance of the dentures and patient was put on regular follow-up (Figure 7 G-I and Figure 8 A-B).



Figure 7 A-C Recording of Maxillomandibular relation, D-F Try-in, G-I Definitive prosthesis ex-situ.



Figure 8 A Pre-rehabilitative smile and, B Post-rehabilitative smile.

DISCUSSION

Flabby mucosa may develop due to many etiologies including from a single complete denture opposing the natural dentition or a fixed dental prosthesis [4]. Conventional impression making techniques lead to compression of the fibrous tissue associated with flabby ridges, leading to instability, loss of retention, and dislodgement due to the elastic recoil of the fibrous soft tissue during function [5]. The management of flabby tissues on denture-bearing surfaces may be done using surgical removal, implant-retained prostheses, and selective pressure impression techniques [6]. No definitive consensus exists on the superiority of any particular modality over the other. However, the non-surgical approaches are the commonest in managing such cases because of its simplicity, cost-effectiveness and predictability [7] with surgical

removal, bone grafting, or the placement of dental implants being contraindicated in elderly patients due to the presence of other age-associated illnesses and resultant polypharmacy. The exact replication of the ridge tissue in an undisplaced condition is most important to the patient not only for comfort but also to provide maximum retention and stability of the prosthesis. The use of minimally displacive impression techniques helps to overcome some of these limitations [8]. The technique used in the present case describes how the management of poor denture-bearing areas can be accomplished by expanding on the basic principles of complete denture construction without having to resort to invasive procedures [6].

The window technique described by Hobkirk describes two techniques for making impression of the flabby ridges. One of them uses impression plaster as the material of choice for making the impression of the fibrous tissues through a window in the special tray. The other technique describes a two-step technique where an initial impression is made using a viscous consistency elastomeric impression material followed by drilling holes through the custom tray in the region of fibrous tissues and making an impression of the flabby ridge using light body impression material [9]. The technique used in the present case describes a modification whereby light body elastomeric impression material has been used for making the mucostatic impression through the window made in the custom tray. This eliminates the use of impression plaster with its disadvantages of prolonged setting time, rigidity and difficult manipulation. The technique does not involve any extra clinical steps during the construction of the denture, thereby keeping chairside time to a minimum [6]. However, there are some other factors too which affect the success of a complete denture in the case of flabby tissues including the correct orientation of the occlusal plane with an appropriate occlusal scheme, and proper balancing contacts in excursive movements as any discrepancy in these will further destabilize the denture that is relying on the poor quality denture-bearing tissues [6]. Judiciously planning the differential compression of foundation tissues utilizing a composite approach serves as a simple clinical solution to complex compressibility of oral mucosal tissue.

CONCLUSION

A modified impression technique used to record the flabby edentulous ridge in an undisplaced state to avoid compression and rebounding of the mobile

tissue gave a satisfactory outcome. This technique is simple to implement and adheres to the principles of preventive prosthodontics. Periodic follow-up showed that the patient was satisfied with the prosthesis.

DECLARATION OF INTEREST

Authors declare no conflict of interest.

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