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A single impression technique for complete denture fabrication on flabby ridge using addition silicone impression material -A case report

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Abstract

Growth of tissue over the ridges is common clinical findings in maxillary as well as mandibular arch. This tissue overgrowth is commonly called as flabby ridges. The flabby ridge affects the stability and the retention of the prosthesis. So proper management of flabby ridge is essential for the stability and the retention of the prosthesis. The special impression technique advocated for proper recording of flabby ridges includes window technique for static impression. This article discusses a case report of a patient with flabby ridge on anterior part of the maxilla. A single impression technique using addition silicone impression material is used for recording the flabby tissue.

Keywords: Flabby ridge, Addition silicone.

Introduction

The alveolar ridge may become mobile and extremely resilient due to the replacement of bone by fibrous tissue. They are known as flabby ridges or fibrous ridges. It is most commonly seen in anterior part of maxilla where opposing natural teeth is present. Flabby ridge occur mostly due to the presence of excessive load on the ridge and unstable occlusal conditions. Fibrous tissue over the ridge may get displaced during mastication. Displaced flabby tissue results in unstable position of the denture, failing to establish a proper peripheral seal. Histopathological studies of such ridge reveals marked fibrous, inflammatory and resorptive findings of underlying bone. [1]

Considering flabby ridges and dentures, it is found that these ridges provide poor support for the denture. For a

comfortable and convenient use of denture on a flabby ridge, proper care and technique has to be followed from the very beginning. The clinician must never fail to notice a flabby ridge. Such ignorance may result in unsatisfied and useless denture, apart from all the hard-work done on it. So the primary and the most important step is to identify a flabby ridge [2].

The etiological factors for such a ridge which include- long term denture wear without maintenance, trauma from denture base, ill-fitting dentures, malocclusion, poor systemic health, unplanned extractions, ridge resorption, aberrant forces on prosthesis and combination syndrome, has to be kept in mind while taking the detailed history of patient. It can be further observed and confirmed by ridge inspection and palpation. Once the clinician confirms the presence of fibrous ridge, the patient has to be informed about the ridge condition and the possible treatment modalities. This case report describes a method for the fabrication of complete denture on a flabby ridge.

Case Report

A 60 year old male patient came to the department of maxillofacial prosthodontics and crown and bridge with the chief complaint of completely missing upper and lower arch teeth. He was an upper complete denture and lower removable partial denture wearer for a period of about 5 years. He underwent extraction of lower anteriors due to severe periodonditis and poor prognosis about a month back.

On examination a flabby ridge was noticed in the anterior maxillary region and a normal mandibular ridge. Patient was instructed to undergo recovery phase for a week and report back.

Primary impression of maxillary arch was made using alginate hydrocolloid impression material. Primary cast was poured. A full wax spacer was adapted on the maxillary cast and double spacer was given on the flabby ridge region on maxillary cast. (Figure 1)

Figure 1: Double spacer on flabby ridge region

A custom tray was fabricated over the spacer using self cure acrylic resin. Borders were marked and trimmed 2mm above the vestibule. A handle was made for easy stabilisation. (Figure 2)

Figure 2: Fabricated custom tray with handle

Border moulding was done using greenstick impression material. (Figure: 3)

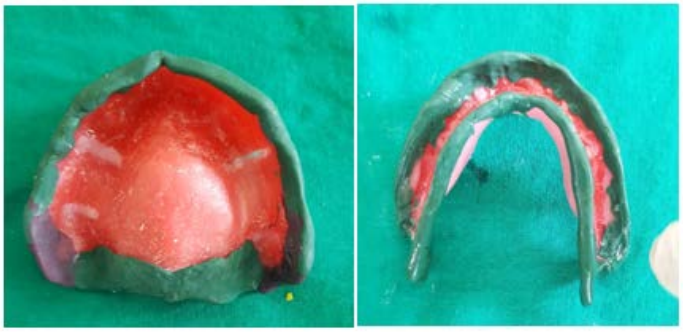

Figure 3: Border moulding done

Wax spacer was then removed and multiple holes were drilled on the custom tray for obtaining additional retention while recording a secondary impression, which is to be followed.

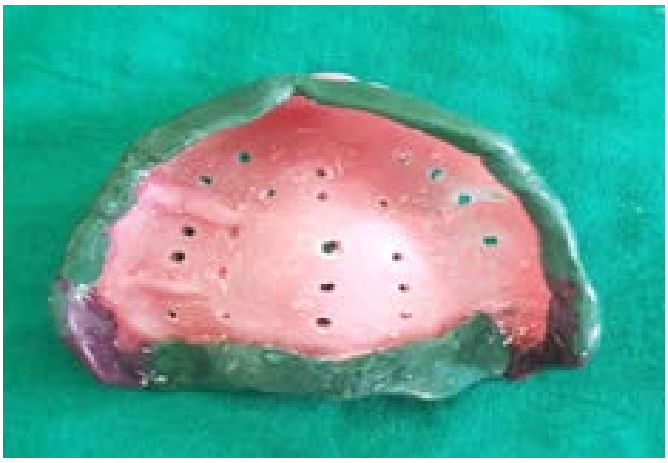

Figure 4: Custom tray with multiple holes

Secondary impression was recorded using addition silicone light body impression material. (Figure 5)

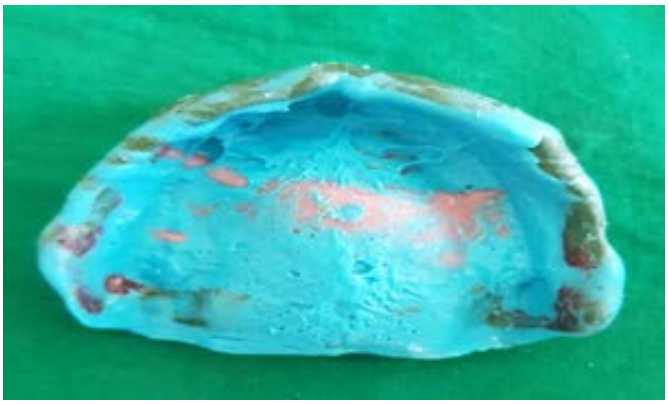

Figure 5: Recorded secondary impression

Subsequently, secondary cast was poured in dental stone material. Jaw relation was recorded. Teeth arrangement was done.

Trial insertion was done and the patient was satisfied. After laboratory procedures (acrylisation, finishing and polishing), the final denture was delivered.

Discussion

Management of a flabby ridge can be done by 3 approaches. [3] [4]

1. Conservative approach /recovery program;
2. Prosthetic approach;
3. Surgical approach.

In recovery program tissue rest must be done first. The denture must be kept out of mouth for duration of 8 hours in every 24 hours. This has to be done a few days prior to the recording of new impression, as it enables the inflammation to subside and thus provide more accurate and precise impression. The patient must also be instructed to massage the soft tissue using fingers, twice or thrice a day to stimulate blood circulation which in turn aids in fast recovery of the tissues. Ask the patient to include a mouthwash rinse / warm saline rinse as part of his/her routine. The clinician must examine the denture for pressure spots or occlusal disharmony and has to be corrected. Tissue conditioning can also be done for better results.

If the problem persists even after the conservative approach, prosthetic approach is done. This includes recording the impression either by window technique or selective impression technique. Once the impression is recorded, then the centric relation has to be recorded with least possible displacement of supporting tissues. Then teeth arrangement is done by following the neutral zone. Once insertion is done, patient is instructed to have periodic check-ups.

If at all, the other two approaches do not have a way, the surgical approach has to be considered. This involves the removal of fibrous tissue leaving behind a firm ridge. However this is not highly appreciated as there is

increased chance of ridge atrophy in long term denture wearers, which may result in reduced stability of the prosthesis. Ridge augmentation following the surgical approach may show light in such cases. Thus the patient with a flabby ridge can also be a happy and satisfied denture wearer, if both the clinician and the patient have done their part well.

Prosthodontic literature has documented various impression techniques for the management of flabby ridge. Few of them were put forward by Magnusson et al, Crawford et al, Osborne et al, Watt and McGregor et al.

The beginning of the fabrication of a prosthesis is the impression making. The objectives while making an impression include retention, stability, support, esthetics and preservation of remaining structures.Various techniques of impression making are available. They can be mucostatic, mucocompressive or selective pressure technique based on the theories of impression making. [5] [6]

Though Mucostatic/ passive impression technique was first proposed by Richardson, it was widely popularized by Harry Page. [7] Here, the impression is made with the oral mucus membrane and jaws in normal, relaxed condition. Border moulding is not done and thus may lack a proper peripheral seal.Carole Jones put forward mucocompressive technique, where the oral tissues are recorded in a functional and displaced form using impression compound/ waxes or soft liners. However, during rest position, tissues tend to rebound/ get displaced [8] . Widely accepted technique today, is the selective pressure impression technique put forward by Boucher. In Boucher's technique, the impression is made to extend over the denture bearing area without interfering with the limiting structures at function and rest. Here the forces are confined to the stress bearing area [7] .

For a flabby ridge, a technique was described by Liddlelow, where two separate impression materials, plaster of paris over the flabby tissues and zinc oxide eugenol over the normal tissue, was used in a single custom tray. [5] Another technique put forward by Osbome uses two different impression materials in two different trays for obtaining the best impression by relating them intra orally. [9] Window impression technique, the commonly used one, was given by Watson. Here fabrication of custom tray is in a bit different way. A window is given over the flabby tissue. After taking a zinc oxide eugenol impression of the normal tissue using the custom tray with window, a low viscosity mix of plaster of paris is painted over the flabby ridge through the window. [10] Lynch and Allen put forward a method where the maxillary borders were recorded by selective pressure technique using greenstick compound. [4] The spacer is then removed and multiple holes were drilled in the region of flabby tissue. This was done to prevent pressure build-up in the flabby region. Tray adhesive was applied. A final impression is recorded using addition silicone impression material

Conclusion

Prosthetic rehabilitation has a major role in today's scenario. It is widely utilised and accepted. Its outcome and success depends on the technique and the material used throughout the fabrication procedure. Identification of the problem and its proper management in the most suitable way often results in an acceptable and comfortable prosthesis.

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