

“Grab the flab” window impression technique: A case report

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Abstract: *Aims and objective:* Making of a definitive, secondary or wash/final impression of displaceable flabby tissues with minimum or no displacement of tissue by using window impression technique.

Background: Denture fabrication on flabby ridges is testing situations for a clinician as it adversely affects retention and stability of complete dentures. The difficulties encountered in these patients need to be overcome by modified techniques in denture fabrication that are not time consuming and make use of materials that are easy to use.

Materials and Methods: This window impression technique, uses a custom tray with a window over flabby tissues and a mucostatic impression material to minimize distortion of tissues while making a impression. First, an accurate record of the denture supporting and limiting structures is made except for the mobile tissues which are recorded in second step using light body Polyvinyl siloxane impression material in the window area of special tray.

Conclusion: The use of window impression technique helps in maintaining the contour and recording the details of the tissues without displacing the flabby tissues. Hence, it improves the prognosis for complete denture without surgical removal of hyperplastic tissues.

Keywords: Window impression technique, flabby ridge, Polyvinyl siloxane, hypermobile tissues, mucostatic, light body impression material.

I. Introduction

As a result of improved dental treatment philosophies, increased awareness and advanced dental technology, number of patients who retain some or all of their natural teeth has increased [1]. In some cases the remaining natural teeth cause unfavorable distribution of occlusal forces resulting in bone resorption in the maxillary and the mandibular edentulous ridges.

The prevalence of flabby ridges is found to be 24% in the edentulous maxilla and 4% in the mandible. Ellsworth Kelly [2] 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. The presence of displaceable denture-bearing tissues often presents a difficulty in making complete dentures. Displacement of such flabby tissues during impression making is always a concern. Soft tissues that are displaced during impression making tends to return to their original form, and complete dentures fabricated will not fit accurately on the recovered tissues. This results in loss of retention, stability, discomfort and gross occlusal disharmony of the dentures [3]. Many impression techniques have been proposed to overcome this difficulty.

Liddlelow described a technique that makes use of two separate impression materials, zinc oxide eugenol impression paste for the normal tissues and impression plaster for the flabby tissues. In the technique described by Osborne [4], two separate trays and impression materials were used to record the normal and flabby tissues and then related intraorally. In the “Window impression technique” described by Watson [5], a custom tray is made with a window over the flabby tissues. A muco-compressive impression of the remaining tissues is made with zinc oxide eugenol impression paste and then a thin mix of impression plaster is painted over the flabby tissues, to complete the impression [8].

Impression plaster is a mucostatic impression material and produces little or no pressure, but it is difficult to handle and to pour [6] also it offers little advantage over low viscosity Polyvinyl siloxane materials. Light body Polyvinyl siloxane is also a mucostatic material. It is dimensionally most stable, elastic material and records undercuts.

The purpose of this article is to describe an impression technique for flabby ridges that makes use of low viscosity Polyvinyl siloxane impression material routinely available in general dental practice.

II. Case Report

A 65 year old male patient reported to the Department of Prosthodontics, Rural Dental College & Hospital, Loni, requesting for a set of new dentures. The patient had been edentulous for the past 12 years and had two sets of complete denture made previously. The patient complained that the previous dentures were ill-fitting. He reported difficulty in eating and speaking with his old pair of dentures. He did not give any relevant medical history.

On examination, it was noticed that there was an area of flabby tissue in the maxillary anterior region extending from the canine region from one side to the other and blanching of the tissues was seen when pressure was applied (figure 1). The mandibular edentulous ridge was also resorbed and the buccal vestibule was obliterated.



Fig. 1 Maxillary anterior flabby ridge.

Treatment modalities like implant supported prosthesis and surgical excision of hyperplastic tissue were explained to the patient. Patient however, was not interested in any surgical procedures. Thus they were ruled out. So it was decided to use the Window impression technique for the maxillary arch. Informed consent for the treatment was taken from the patient.

III. Technique

1. A preliminary impression of the maxillary edentulous arch was made (Figure 2) using Irreversible hydrocolloid impression material (Zelgan, Dentsply, India) in a metal stock tray.



Fig. 2 Preliminary impression of maxilla arch.

2. The impression was poured in type II gypsum product to obtain a preliminary cast.
3. Flabby ridge area was outlined on the cast. A Special tray was fabricated in autopolymerizing acrylic resin (R.R. Self Cure acrylic, Dentsply, India) with proper spacer and stoppers on the preliminary cast. The border of the Special tray was trimmed 2mm short of the sulcus.
4. Border moulding was carried out for the maxillary arch using sectional method with type II low fusing impression compound (DPI Pinnacle, Tracing Sticks Dental Products of India, Ltd).
5. Outline area of window in the custom tray was created above the displaceable alveolar ridge using round and fissure bur. Size of the window opening was determined according to the extent of the displaceable tissues. (Figure 3).



Fig. 3 Window in maxilla anterior region

- The spacer was removed, tray adhesive was applied on the borders and on the tissue surface of the tray. The adhesive was allowed to dry for 10 minutes before loading the tray so that a strong bond is created between impression material and tray thereby preventing the displacement of material from tray.
- The final impression was made with monophasic Polyvinyl siloxane impression material (Aquasil, Dentsply Caulk, USA) and was carefully evaluated. Excess impression on the periphery and over the window opening was trimmed away with scalpel blade number 24. (Figure 4).



Fig.4 Wash impression of denture supporting and limiting structures except mobile tissue made with light body.

- The impression tray was reinserted into the patient's mouth and light body Polyvinyl siloxane (Aquasil, Dentsply Caulk, USA) was injected with syringe on to the flabby tissues exposed through the window opening.
- The material was placed in most passive manner to prevent the distortion of the soft tissue.
- The impression material was allowed to polymerize according to the manufactures recommendations. The impression was then removed in a single jerk and was evaluated carefully (figure 5).

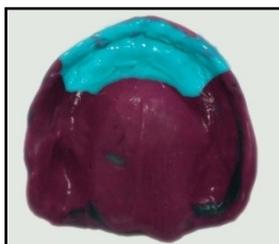


Fig.5 Wash impression of mobile tissue made with light body.

- Impression was disinfected in 2% glutaraldehyde for 10 minutes and conventional beading and boxing procedure was done using beading and boxing wax.
- The impression was poured in type III dental stone (Kala Stone, Kala Bhai, Pvt. Ltd. India) to obtain master cast.
- While manipulating Polyvinyl siloxane, vinyl gloves are used instead of latex gloves because dithiocarbamates, sulfur and sulfur chloride [7] used in manufacturing of latex gloves can inhibit the setting of the material. The effect is so strong that even touching of tissues with latex gloves before making impression inhibits setting of material adjacent to tissues thereby affecting the dimensional stability of the impression.

IV. Discussion

With increase in dental awareness among general population and advancement in dental technology and dental treatment many patients retain some, or all, of their natural teeth until later part of life [8]. Sometimes, unusual arrangements of remaining natural teeth can lead to unfavorable distribution of occlusal forces on residual alveolar ridges, resulting in bone resorption and development of flabby tissues.

Due to poor health, medical condition or systemic diseases, elderly patients may be unsuited for surgical procedures such as removal of flabby ridges, bone grafting, or placement of dental implants. So the window impression technique described can be successfully used for prosthodontic management of patients with flabby ridges along with basic principles of complete denture fabrication without any invasive surgical procedure.

When the flabby tissues are displaced during fabrication of complete dentures, one of the chief complaint of the patient is loosening of complete dentures. Many dentists advise chair side reline to minimize looseness of denture but this approach is inappropriate and will not solve the problem. In chair side reline

technique, complete denture will act as a tray and viscous reline material will further displace the flabby tissue. The tissues will again tend to recoil and the denture will still be ‘loose’.

This problem is circumvented in the described impression technique by recording the flabby area in minimally displaced form and the rest of the tissues in functional form. Addition silicone elastomeric impression materials are used, because these materials are less brittle as compared to zinc oxide eugenol impression paste or impression plaster and are also less messy to use. It has been shown that there is no significant difference in retention and stability with Polyvinyl siloxane materials as compared with zinc oxide eugenol impression paste [9].

Other treatment modalities used for managing these patients are surgical excision of the flabby tissues and the use of dental implants. Surgical removal of flabby tissues is mainly a historical concept nowadays. The rationale behind its use was that removal of flabby tissues would result in a ‘normal’ compressible denture bearing area.

Some of the difficulties caused by this approach include the fact that many complete denture patients are elderly or have complex medical histories, for which any form of surgery is contraindicated. Bone loss, the excision of flabby tissues and resultant ‘shallow’ ridge may provide little retention or resistance to lateral forces on the resultant denture. The use of dental implant in such cases is very difficult because of excessive bone resorption and replacement by flabby tissues, and there will be little bone remaining into which dental implants cannot be placed. While it would be technically possible to augment the remaining ridge with bone grafts, the prognosis of such treatment would be questionable.

Furthermore, there are a group of patients who due to some clinical or medical reasons are unsuited for dental implant treatment and also some patients who do not wish to have surgically invasive procedures such as placement of dental implants. So these types of patients can be successfully managed prosthodontically by using this technique.

V. Conclusion

Presence of displaceable denture bearing tissue presents a difficulty in complete denture fabrication. Although surgery and implant supported prosthesis are effective treatment options in such cases, it may not always be feasible in elderly patients due to systemic diseases or cost factors. With modified impression techniques and newer materials with improved physical properties and handling characteristics, fibrous and flabby ridges can be managed effectively by conventional prosthodontics without any additional clinical visits as compared to patients with normal edentulous ridges.

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