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Dr. Monika Yadav
D.Y. Patil Deemed To Be
University School of Dentistry,
Navi Mumbai, Maharashtra,
India

Dr. Charushila Sardar
D.Y. Patil Deemed To Be
University School of Dentistry,
Navi Mumbai, Maharashtra,
India

Dr. Gaurang Mistry
D.Y. Patil Deemed To Be
University School of Dentistry,
Navi Mumbai, Maharashtra,
India

Dr. Mayuri Bachhav
D.Y. Patil Deemed To Be
University School of Dentistry,
Navi Mumbai, Maharashtra,
India

Corresponding Author:
Dr. Monika Yadav
D.Y. Patil Deemed To Be
University School of Dentistry,
Navi Mumbai, Maharashtra,
India

Flabby tissue– revisited: Case report

**Dr. Monika Yadav, Dr. Charushila Sardar, Dr. Gaurang Mistry and
Dr. Mayuri Bachhav**

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Abstract

The success of complete denture is enhanced by achieving the objectives of impression making, that is preservation of underlying tissue, retention, stability, support and esthetics. Flabby tissue is a common clinical finding affecting the alveolar ridges of both mandibular or maxillary arches. The use of conventional impression techniques for recording flabby tissues can lead to unstable and unsatisfactory denture. But some modification in the impression techniques can record the flabby tissues in an undistorted form and thus help to fabricate a stable denture. The problem with conventional denture is rigidity of material which comes in contact with tissue surface, leading to uneven distribution of load. A liquid supported denture allows uniform stress distribution due to its flexible tissue surface and provides improved patient's acceptance.

Keywords: flabby tissues, mucostatic impression, modified window technique, liquid supported denture

Introduction

The success of complete denture depends upon proper diagnosis and correct treatment planning and its execution. A final impression should record the entire denture- bearing area to achieve support, retention and stability. Flabby tissue is a movable soft tissue which is located on the superficial aspect of the alveolar ridge ^[1]. If recorded in displaced form can lead to unstable denture hence should be recorded in static form without applying any pressure on them by mucostatic technique ^[2].

In complete denture fabrication, flabby tissue should be able to withstand masticatory forces and have flexible tissue surface to reduce stress on the underlying tissues³. Using combination of different materials for denture base, stress on the flabby tissues can be reduced. Liquid-supported denture can be a solution for this problem ^[4]. So, the purpose of this article is to present a modified window technique for recording flabby tissues using PVS impression material and equal stress distribution over flabby tissue by making liquid supported denture.

Case Report

A 58-year-old male patient reported to D.Y. Patil University, School of Dentistry, Navi Mumbai, India, with chief complaint of ill-fitting denture. On intra-oral examination, mandibular arch with flabby tissue was observed extending from canine-to-canine region. As per the clinical condition, it was planned to fabricate Liquid-supported mandibular denture with a window impression technique.

Following steps were carried out for the planned treatment

1. A Primary impression was made with irreversible hydrocolloid (Coltoprint, Coltene) material of mandibular arch.
2. Custom tray (DPI RR Cold Cure) was fabricated using spacer thickness of 2mm and two finger rest on it.

Window in the anterior area was outlined using a sharp knife and vacuum heat pressed polyethylene sheet of 1 mm thickness was adapted on the tray after curing and window was removed. (Figure. 1)



Fig 1: Vacuum pressed polyethylene sheet adapted on the custom tray and marked window was removed

3. Border moulding was performed with low fusing impression compound (DPI Pinnacle) and final impression was made using medium body PVS impression material (Aquasil, Dentsply).
4. Three holes of similar dimensions were placed on the polyethylene sheet in the window area. The impression material in the flabby tissue area was carefully removed using blade. (Figure. 2)



Fig 2: Excess materials were removed and three holes were made

5. Light body PVS impression material (Aquasil, Dentsply) was injected starting from one of the side holes until some excess material comes out from the other holes. (Figure. 3 & Figure. 4)



Fig 3: Injecting light body PVS impression material from one hole



Fig 4: Final mandibular impression

6. Temporary record base and occlusal rims were fabricated on master cast, jaw relation was recorded and try-in was done.
7. The mandibular denture design was modified to make Liquid supported denture. Maxillary complete denture was fabricated using conventional technique.

Following steps in fabricating a Liquid-supported denture

1. Vacuum heat-pressed polyethylene sheet of 1.5mm thickness was adapted on the mandibular master cast. The sheet acted as a temporary spacer, and it was made 2mm short of the sulcus. (Figure. 5)



Fig 5: Thermoplastic sheet with 1.5mm thickness adapted on mandibular cast with 2mm short of sulcus

2. This was incorporated in the denture at the time of packing and petroleum jelly was applied over it so that this temporary sheet can be retrieved easily and the denture was processed along with sheet.
3. Finishing and polishing of the denture was done and it's checked in patient's mouth for retention, stability. Patient was asked to wear the denture for at least two weeks to get adjusted with it. (Figure. 6)



Fig 6: Polished denture with 1.5mm thick temporary thermoplastic sheet

4. Patient was recalled after two weeks for making liquid supported denture. To get the junction of the temporary sheet and the denture base, impression of the tissue surface of the denture was made using putty consistency addition silicone material (Aquasil, Dentsply) (Figure. 7). The negative replica was converted into positive replica of the denture with the junction marked over it.



Fig 7: Addition silicone putty impression of tissue surface of the denture was made

5. On this cast, 0.5mm thick final polyethylene sheet was vacuum heat pressed in place of 1.5mm thick sheet creating a 1mm space between tissue surface of the denture and permanent polyethylene sheet. (Figure. 8)

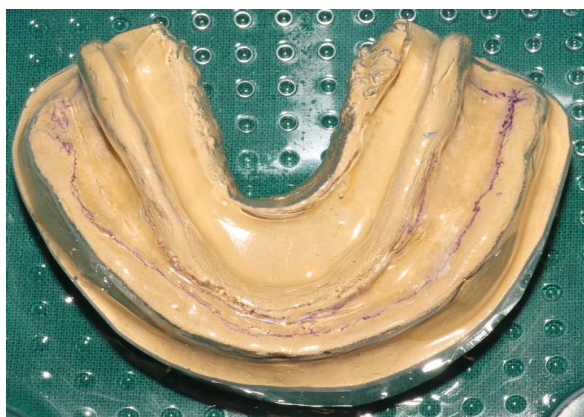


Fig 8: Junction marked and 0.5mm thick thermoplastic sheet was adapted on the cast

6. The temporary 1.5 mm thick thermoplastic sheet was removed from the denture and was replaced by new 0.5 mm thick permanent sheet in the final denture.
7. The borders of the 0.5 mm thick sheet were placed in the crevice formed due to removal of 1.5 mm thick sheet. Self-cure acrylic resin was used to seal the borders and prevent leakage of liquid. (Figure. 9)



Fig 9: Tissue surface of denture with 0.5mm thick thermoplastic sheet and filled with glycerine

8. Two holes were made in the buccal flange area of the denture and glycerine was injected through these holes and the holes were sealed using self-cure acrylic resin. (Figure. 10 & Figure. 11)

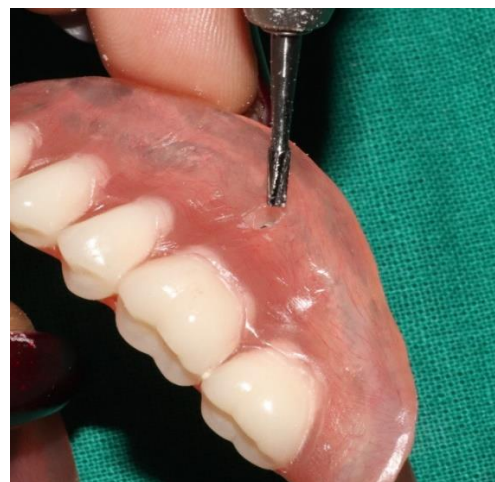


Fig 10: Drill holes were made on buccal flange



Fig 11: Glycerine was filled through these holes

9. The both dentures were delivered and denture care instructions were given to the patient. (Figure. 12)



Fig 12: Intra-oral view of final maxillary and mandibular complete denture

Discussion

Several impression techniques have been described for recording flabby tissue. Flabby tissues when recorded using a conventional method can get compressed and displaced during impression. The elastic recoil of flabby tissue during function results in instability, loss of retention and dislodgement of denture (Pai *et al.*, 2014; Allen and McCarthy, 2003) ^[5, 6]. There is no evidence to support that one particular impression technique will provide a stable and retentive denture on flabby tissues as compared to others (McCord and Grant, 2000) ^[7]. A window impression technique was proposed by Watson, to minimize the movement of flabby tissue during function. He created window in the custom tray over the flabby tissues anteriorly, and used impression plaster for the flabby ridge and zinc-oxide eugenol impression paste for the healthy denture bearing area (Watson 1970) ^[8]. In this case, a modified window technique was used for the impression of flabby tissue using PVS impression material (Lynch and Allen, 2005; Fokkinga *et al.*, 2017) ^[9, 10]. Thermoplastic polyethylene sheet was used for holding and preventing the low viscosity material from dropping away from the tissue.

The liquid supported denture is flexible and adapts to the flabby tissues. The concept is that when the force applied on the denture is not there, the base assumes its pre shaped form. On application of force, the base due to the hydrodynamics of the liquid lining, adapts to the modified form of mucosa, improving support, retention and stability ^[4]. Glycerine was used because of its clearness, thickness and biocompatibility ^[11]. Benefits of the liquid-supported denture are preservation of residual ridge, optimal distribution of forces, prevention of soreness from rigid denture bases, better retention, stability, support and comfort with improved patient acceptance because of great comfort due to smooth flexible surfaces ^[12].

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