UNCONVENTIONAL APPROACH TO MANAGE FIBROUS HYPERMOBILE FLABBY TISSUE IN MAXILLARY EDENTULOUS ARCH –A CASE REPORT

Dr. Neethu Elizabeth Antony

Article History: Received: 12.12.2022 **Revised:** 29.01.2023 **Accepted:** 15.03.2023

Abstract:

Flabby tissuesin edentulous arches can cause lack of retention and stability in complete denture. Conventional manner of denture fabrication may not provide optimum retention and stability of the complete denture. Designing a prosthesis will depend upon the morphological changes in the denture bearing areas of the jaws. The flexible tissue surface in the liquid supported denture allows for the uniform distribution of forces and also improves the patient acceptance. This case report describes the fabrication of liquid supported denture in completely edentulous patients.

Keywords: Flabby tissue, Liquid supported denture,

Senior Lecturer, SRM Dental college, Ramapuram.

DOI: 10.31838/ecb/2023.12.s2.080

1. Introduction

An ideal denture base should be flexible, to have continuous adaptation to the mucosa at both resting and functional state. However, it should be rigid to support the teeth during function[1].All these properties cannot be combined in one material. With combinations of materials, the denture base can be made rigid where it needs to be strong and when in contact with the soft tissues can become flexible[2]. Rehabilitation of the missing dentition with dental prosthesis enhances the quality of life of the individual [3].A complete denture should enhance aesthetics, phonetics and masticatory function in the edentulous patient[4].Complete dentures made in conventional manner may have certain disadvantages in compromised patients.The increasing demand of patients and revolutionary thought of prosthodontists led to the unconventional approach for fabricating complete dentures.

In long term denture wearers,muscle dynamics or tissue irritation caused replacement of the alveolar bone with hyperplastic soft tissue and this ultimately affected the residual ridge dimensions[5]. Other contributing factors include compromised oral hygiene, the continuous wearing of dentures, age-related changes, smoking, traumaand inappropriate relief chambers[6].Hence, Fibrous' or 'flabby' ridge has superficial area of mobile soft tissue affecting the maxillary or mandibular alveolar ridges. This can result in loss of stability and inadequate retention of the dentures[7]**.**

In patients with flabby ridges, complete denture prosthesis should be designed incorporating flexible tissue in such a way that it must withstand masticatory forces,to minimize stress concentration and trauma on the underlying denture bearing surface[8]. The final performance of a complete denture depends on its support and retention[9].

This article describes the design of a maxillary Liquid-supported complete denturetechnique which is an unconventional approach with its base covered with a pre-shaped, closed fitting, flexible foil containing a thin film of viscous liquid.

Case Report:

A 63-year-old male patient had come to our department of prosthodontics with a chief complaint of difficulty in speech and function due to the ill-fitting denture. He had the history of diabetics and hypertension for past 10 years. History revealed that the patient was wearing complete denture for past 6 years. Intra oral examination revealed completely edentulous maxilla and mandible (FIG 1,2). On palpation, flabby tissues were present in the maxillary arch. Various treatment options such as surgical excision of the flabby tissue and implant-supported overdenture were explained to the patient, but the patientwas not interested in these options. Hence, it was decided to give a conventional mandibular complete denture opposing a liquid-supported maxillary complete denture because of flabby soft tissues in the maxillary arch.

FIG1: Completely edentulous maxilla

FIG2: Completely edentulous mandible

Primary impression of the maxillary ridge was made with low-viscosity irreversible hydrocolloid material (ALGINATE - Prime Dental products pvt. Ltd., Mumbai, India) to avoid distortion of the displaceable tissue and mandibular impression was made with impression compound.

Preliminary Impression

FIG 3: Maxillary alginate impression

FIG 4: Mandibular impression with impression compound

Custom tray with spacer were fabricated. Border molding wasperformed using low fusing impression compound (DPI Pinnacle tracing sticks, Dental products of India).Spacer was removed, final impression was made with zinc oxide eugenol (ZOE) paste(DPI, Mumbai, Maharashtra, India)(FIG 5).

FIG 5: Definitive mandibular impression

For the final impression of maxillary arch, the flabby tissue area was marked in the patient's mouth and then transferred on the tray. Based on the marking, a window was cut in the flabby tissue area of the maxillary custom tray. Impression was reseated in patient's mouth and light-body addition silicone material (Aquasil, Dentsply) wasinjected over the flabby tissueexposed through the window made in the special tray. After complete setting of the material, impression was removed and inspected.(FIG 6)

FIG 6: Definitive maxillary impression

Jaw relation was recorded and try-in, wax-up, flasking and dewaxing were carried out by conventional method(FIG 7). Conventionalacrylisation of mandibular denture was done.

FIG 7 :Dewaxing

Vacuum heat pressed polyethylene sheet of 1.5 mm thickness was adapted on the maxillary master cast with the help of a vacuum heatpressed machine (FIG 8). The softness, flexibility and biocompatibility nature of polyethylene thermoplastic clear sheet made it ideal to be used in the denture fabrication .The sheet must be 2 mm short of the sulcus and didn't involve posterior palatal seal area.A layer of vaseline was applied over the sheet, followed by packing and curing procedures.Denture along with sheet was acrylised using heat cure resin (FIG 9).

FIG 8: Vacuum heat pressed polyethylene sheetadapted on the master cast

FIG 9: Acrylised denture with Vacuum heat pressed polyethylene sheet

After the finishing and polishing of the denture, it was checked in patient's mouth for retention, stability, support and border extension. Patient was asked to wear the denture for at least of two weeks so he can get adjusted.After a week, maxillary denture is to be converted into a liquid-supported denture.The 1.5 mm thick sheet which was removed from the denture. The crevices formed after theremoval of the sheet helped in the final placement of 0.5 mm thick sheet.

FIG 10 :Removal of spacer sheet from denture

Cast was made from the impression of the tissue surface of the denture to record the exact junction of the sheet.

FIG 11: Tissue surface reproduction

On this new cast a 0.5 mm thick polyethylene sheet was vacuum pressed (FIG 12)which was used in place of 1.5 mm thick sheet creating a 1 mm space between sheet and the acrylic. To prevent the escape of liquid, the borders were sealed using cyanoacrylate adhesive and autopolymerizing acrylic resin.

FIG12: Polythene sheet on the new cast

Two holes were created in the buccal flange area of the denture and glycerin was injected into this space(FIG 13)while checking the vertical dimensions simultaneously.The use of Glycerine wasbecause it is colourless, odourless, viscous and biocompatible. The holes were then completely sealed using self-cure acrylic resin.

FIG 13: Injecting glycerine

Finishing and polishing of the denture was done (FIG 14). The denture was inserted and was evaluated for retention, stability, support, esthetics, phonetics, vertical dimension and occlusion (FIG 15).Instructions regarding denture care were given to the patient.

FIG 14:Final Denture

FIG 15 : Denture evaluation

Recall appointments were given at 1 day, 1 week, 1 month and 3 months interval and the patient was comfortably using the well-maintained denture.

2. Discussion:

Presence of flabby tissue in the edentulous maxillary arch resulted in the unfavourable distribution of masticatory forces. This will result in the displacement of mobile denture bearing

tissuecausing loss of peripheral seal further leading toproblems related to the support, stability and retention of the complete denture[10].

The anatomical, physiological, physical, mechanicaland muscular factors for optimum retention is obtained by the precise adaptation of the prosthesis to the underlying tissues[11].

The solution in this case scenario was modifying the impression technique and fabricating liquid supported maxillary complete denture.Sanketh et al in his study concluded that better treatment can be made accessible to patients while taking their demands into consideration[12].

Watsonet aldescribed the 'window' impression technique where a window or an opening is made over the flabby tissues on a custom tray[13].In the present case, elastomeric material was used in such a manner so that it will prevent the distortion of the soft hypermobile tissue[14].

The hydrodynamics of the liquidpresent in the liquid supported denture allows for the close adaptation of the denture to the modified form of mucosa, improving support, retention and stability.

Tissue overloading is reduced by the optimal stress distribution of masticatory forces over a larger area.Thus, benefits of both tissue conditioners and soft liners are seen in liquid supported denture, which in turn helps in long-term the preservation of bone and soft tissues[1].

Indications for the liquid supported complete denture are in patients with severely resorbed maxillary and mandibular ridges, inflamed or flabby tissues, vesiculo-bullous lesions and with systemic disorders[15].

The advantages of fabricating a liquid supported dentures is that it provides great comfort due to smooth flexible surfaces which further prevents chronic soreness from rigid denture bases. Also provides better retention, stability, support and preservation of residual ridge by optimal distribution of forces[16].

The major drawback is that relining is not possible in fluid retained dentures and also frequent refilling of the denture is needed.

3. Conlusions:

Achievement of stable and retentive dental prostheses pose a prosthodontic challengein cases with fibrous ridges.Surgical removal of fibrous tissue and Implant retained prosthesis may not be most suitable treatment option for many patients.Liquid supported denture can stand as a better option in such situations because of its characteristics of plasticity and elastic recovery.

4. References:

Jain A, Puranik S, Jagadeesh MS, Kattimani P, Akki S, Kumar P, Laxmi' V. Liquid-supported dentures: a soft option-a case report. Case Rep Dent. 2013;2013:307096.

Mody PV, Kumar G, Kumar M, Shetty B. Liquid supported denture-management of flabby ridges. Contemp Clin Dent 2012;3:323-5.

Arunraj D, Gnanam P, Chander GN. Prosthodontic rehabilitation of a patient with missing teeth and loss of vertical dimension using telescopic overdentures. Contemp Clin Dent 2021;12:67-72.

Muthuvignesh N, Jei JB, Balasubramaniam MK. Materialistic Meets Realistic on Denture Characterization – A Case Report. Arch Pharm Pract. 2022;13(3):1-4.

Crawford RW, Walmsley AD. A review of prosthodontic management of fibrous ridges. Br Dent J. 2005 Dec 10;199(11):715-9.

Muthulakshmi C, Subramanian. S, Sharma Ji S, Rengabasiyam S, Sundaram SM, Divya B. Denture-induced fibrous hyperplasia with minor salivary gland changes- A case report. SRM J Res Dent Sci 2021;12:112-5.

BarathPanjananDuraiswamy, MabanCarmeen Coelho, Dhanya Kumar B.H. and Nandeeshwar D.B. (2020); LIQUID SUPPORTED DENTURE- A CASE REPORT ON MANAGEMENT OF FLABBY TISSUES Int. J. of Adv. Res. **8** (Nov). 760-765.

Deogade, Suryakant. (2017). Window impression technique: A prosthetic approach to flabby ridges. Annals of Prosthodontics & Restorative Dentistry, January-March 2017:3(1):38-41.

Eswaran.B, Rohit.M, &Soniya.H. (2021). Prosthodontic Management of Flabby Ridge with a Modified Window Impression Technique – A Case Report. Indian Journal of Forensic Medicine & Toxicology, 15(2), 2328–2332.

Kelly E. Changes caused by a mandibular removable partial denture opposing a maxillary complete denture. J Prosthet Dent 2003;90:213-219.

Tharakan SR, Chander NG, Anitha KV, Balasubramaniam M. Retention of removable complete dentures made with different posterior palatal seal techniques and oral health quality of life: A clinical study. J Prosthet Dent. 2021 Sep;126(3):393-397.

Sanketh AK, Sridevi J, Kalavathy N, Shetty MM, Kumar R, Pavan TP. A survey of the prosthetic status and post treatment satisfaction of patients among a South Indian population. SRM J Res Dent Sci 2016;7:17-22.

Watson R M. Impression technique for maxillary fibrous ridge. Br Dent J 1970; 128: 552.

Suryaakant Deogade1, Pushkar Gupta. Window impression technique: A prosthetic approach to flabby ridges. IP Annals of Prosthodontics & Restorative Dentistry, October-December 2017 :3(4): 132-135.

SreelakshmyKammath K S, Anu Mary Joy, Sudeep S,SapnaBhaskaran, A gentle management of flabby ridges: liquid supported denture - a case report. JPID – The journal of Prosthetic and Implant Dentistry / Volume 2 Issue 3 / May–August 2019.

Vickram, A. S., Samad, H. A., Latheef, S. K., Chakraborty, S., Dhama, K., Sridharan, T. B., ... & Gulothungan, G. (2020). Human prostasomes an extracellular vesicle–Biomarkers for male infertility and prostrate cancer: The journey from identification to current knowledge. International journal of biological macromolecules, 146, 946-958.

Marathe Ashlesha S, Kshirsagar Prasad S. Unconventional Prosthesis: Liquid Supported Denture. I J Pre Clin Dent Res 2015;2(2):88-91.