

**Camouflaging complete denture base with oral milieu through characterization: A case report**

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**Abstract**

An artificial denture should meet the functional as well as the aesthetic requirements of a patient. Assessment of every patient should be done individually by the dentist and the patient should be informed that his/her complete denture can be characterized to achieve desirable esthetics. The dentist must strive to provide a prosthesis which possesses suitable characteristics which closely simulate the oral tissues and make patient’s appearance better. Various characterization features that resemble with the uniqueness of the patient’s oral mucosa can be integrated in denture bases consequently providing a life-like appearance to the prosthesis and hence enhancing the esthetics of an individual. This article discusses about a technique that amplifies the esthetics of an esthetically

conscious male edentulous patient with smoker’s melanosis by incorporating intrinsic stains in the denture base that entirely camouflages with the melanotic oral mucosa of the patient.

**Keywords:** characterization, esthetics. intrinsic stains, self-cured acrylic templates.

**Introduction**

Esthetics plays a vital role along with form and function whenever a prosthesis is planned in complete or partial oral rehabilitation. Any artificial prosthesis which is hard to be distinguished from the natural counterparts, and restores his/her esthetics is what every patient desires. It increases the self-esteem of the patient and imparts the feeling of work satisfaction to the dentist. A complete denture should produce natural appearance which can be

attained by adding characteristic features resembling to that of the natural dentition in teeth setting or by incorporating stains resembling natural oral mucosa to the denture base. According to the glossary of prosthodontics terms, denture characterization is modification of the form and colour of the denture base and teeth to produce a more lifelike appearance [1]. **Characterized denture base** is a denture base with colouring that simulates the colour and shading of natural oral tissues [1]. Various characterization features can be added to be denture bases such as festooning, stippling, duplicating alveolar eminence, inflamed or bulbous gingiva, tinting of denture base and incorporating imprints of rugae in the dentures [2].

Characterization of dentures has been endeavoured for many years. Pound (1951) was the first one to introduce the technique of tinting acrylic denture bases to simulate the normal gingival color depending on the racial and individual colour pattern. [3,4] Kemniter used a combination of blue and brown stains to reproduce melanin pigmentation of gingival. Lynn C. Dirken described a method for gaining natural appearance by a combination of stippling and tinting [3].

The goal of contouring and characterization of the denture base can offer realistic appearance and improves esthetics of a patient. The colour characterization can be done by incorporating intrinsic and extrinsic stains to the denture base or to the teeth setting. The basic shade of the gingiva and the colour of pigmentation should be duplicated in dentures to make them look more natural. The colour effect of any denture base must be evaluated in its ultimate environment, that is. The wearer's mouth [5].

This article discusses a case report of a completely edentulous male patient who was a chronic smoker from past 25 years with smoker's melanosis present on the labial and buccal mucosa and palate. To match the colour

of the removable complete denture with the pigmented oral mucosa, a procedure of characterization in which intrinsic stains have been incorporated in the denture base has been described.

## II CASE REPORT

A 50 years old completely edentulous male patient reported to the Department of Prosthodontics, in Luxmi Bai Institute of Dental Sciences and Hospital, Patiala. He was a chronic smoker and also had a habit of chewing tobacco since past 25 years. On the intraoral examination he presented with stiff mucosa and smoker's melanosis (brown to black pigmentation) all over the oral mucosa (fig.1).



Fig. 1: Intra oral examination showing smoker's melanosis

The patient was counselled to quit the habit on his very first visit and kept on recall regarding the same. After 3 months of abstinence from the habit, the mucosa was re-examined and it was decided to proceed with the treatment by fabrication of a complete denture. Patient was esthetically conscious and wanted a denture that seems natural and resembles with the natural intraoral conditions. He was told about the treatment procedure and the idea of adding stains, both extrinsic and intrinsic, to the denture was explained. Patient denied to have extrinsic stains on the acrylic teeth, so it was planned to fabricate a denture with colour characteristics in the denture base that contents the patient's needs. Photographic record of oral cavity was made for future references to match the characterization colour in later steps.

All the clinical steps were recorded with conventional methods. After try-in of the patient, waxed complete dentures was placed on the articulator and a thin layer of clear self-cure acrylic resin (DPI-RR cold cure, Dental products of India, Mumbai, India) was applied on the waxed gingival contours according to scalloping pattern of the gingiva around teeth on maxillary labial and mandibular buccal region where the staining was to be done. After the auto-polymerization of the layer, these were gently separated from the contours of waxed denture and a template was formed. The acrylic templates were trimmed and finished with sandpaper to get a smooth surface and again adapted on the waxed denture. Intrinsic stains (MP Sai Enterprises, Mumbai, India) (fig. 2) were mixed in self-cure monomer with paint brush (camel) and after getting the desirable shade that matches with pigmentation of the oral mucosa of the patient (matched with pre-treatment photographs), it was painted on self-cured acrylic templates over the waxed dentures of the patient (fig.3). The painted self-cured acrylic templates were secured separately for the future use (fig. 4).



Fig. 2: Intrinsic stain colors



Fig. 3: Stained self-cured acrylic templates adapted in maxillary and mandibular waxed dentures

Dentures were waxed up followed by flasking and dewaxing procedure in usual manner. After dewaxing, separating medium (KBI cold mould seal, KBI products, New Delhi) was applied on the moulds obtained. Painted acrylic templates were placed in the mould and adaptation was checked over the labial and buccal gingival region in the mould space. After checking the fit of the templates, they were again removed to be added later at the time of packing. A thin layer of heat cure acrylic denture base (DPI Heat Cure, Dental products of India, Mumbai, India) resin dough of about 1 mm was adapted on the labial and buccal gingival surface in the mould. The stained self-cured acrylic templates were placed and fixed over the thin layer of heat cure resin in the mould.



Fig. 4: Stained self-cured acrylic templates

Packing of rest of the mould space was completed with the heat cure acrylic denture base resin dough and flask was closed under the hydraulic pressure clamp. Following bench curing, the packed moulds were cured in

conventional manner. Then the denture was retrieved and finished and polished in conventional manner (fig. 5).

The polished dentures were delivered to the patient (fig. 6).



Fig. 5: Final complete dentures



Fig. 6: Final complete dentures in patient's mouth

### Discussion

As the patient was conscious about his esthetics so the main focus was to prepare a denture which completely camouflages with the melanotic pigmentation pattern of the oral mucosa. The extent of the tint is influenced by the thickness and colour of the outer layer of the denture base. If the outer layer of heat cure denture base resin is pink, the staining must be slightly darker and if clear denture base resin is used then the same degree of characterization to be painted on the self-cured acrylic templates.

Surface characterization or extrinsic staining technique which involves application of pigments on the surface layer of the denture could also be done. But surface tints do not have sufficient abrasion resistance of the stains which makes it mandatory that minimum alteration is done on surface of the denture while finishing and polishing. To minimize that a layer of light cure clear acrylic resin coating may be used [3,6].

Imparting a uniform colour to the entire denture base is achieved by addition of colouring agent within the monomer and has been used extensively in the fabrication of splints and stents [7,8] but as this patient had varying degree of melanin pigmentation all over the oral mucosa, single shade of stain was not sufficient to provide the desired results.

A laboratory procedure for characterization of denture base in a removable prosthesis during packing of the heat cure denture base resin using absorbent tissue paper and acrylic stains is another technique [9]. As it requires use of tissue paper, it is too delicate to handle and is difficult to retain its position in the denture base. Careful handling is required during positioning and packing of the tissue paper in heat cure acrylic dough.

The advantages of the method described in this article are that the as the tinted self-cured acrylic templates are embedded in the heat cure resin, it is difficult to differentiate whether a foreign pigmented template is added or characterization is given in the heat cure resin itself. As the pigmented self-cured acrylic templates are integrated deeply in the denture and therefore will not be easily affected or removed during finishing and polishing procedure. Self-cure resin undergoes changes in physical structure and appearance due to changing oral temperature and pH of saliva [10]. Since it is not in direct contact with oral fluids, no such problem is supposed to encounter. Disadvantages are that placing the self-cured acrylic

templates over the first thin layer of heat cure and maintaining it in its fixed position in the denture base is very critical. The bulk of dough can displace the self-cured templates from its position, therefore these templates were fixed in position over the first thin layer of heat cure. So, skilled and careful handling is needed during positioning of the pigmented template and packing of heat cure acrylic dough.

### **Conclusion**

Characterization of dentures help to restore patient's esthetics as before. Prior consent of the patient is mandatory before planning any characterization as the success of such complete dentures mainly depends on the patient's esthetic acceptability. Therefore, patient's esthetic demands should be prioritized during treatment planning. Characterizing the denture bases is an art and when skilfully and carefully executed can produce excellent results; otherwise can ruin the esthetics of the patient. The prosthodontist should provide a prosthesis with a suitable colour characteristic that would satisfy the patient as well as the dentist.

### **References**

1. The glossary of prosthodontic terms. Edition one The Journal of Prosthetic Dentistry.2005;94(1):10-92
2. Poddar P, Kumar N, Singh K, Singhal N, Kakkar S. Redefining complete denture esthetics through characterization. International Journal of Recent Scientific Research. 2017;08(04):16468-16470.
3. Lagdive S, Darekar A, Lagdive S. Review: Characterization of Denture Bases-Redefining Complete Denture Esthetics. International Journal of Health Care and Biomedical Research 2012;1:16-20.
4. Srivastava R., Choukse V. Characterization of Complete Denture. International Journal of Dental Clinics 2011;3(1):56-9

5. Winkler S, Vernon H. Coloring acrylic denture base resins. The Journal of Prosthetic Dentistry. 1978;40(1):4-7.
6. Wood G. Investing in the upper half of the flask. The Journal of Prosthetic Dentistry. 1955;5(2):205
7. Fonseca E. The importance of form, characterization, and retention in facial prosthesis. The Journal of Prosthetic Dentistry. 1966;16(2):338-343.
8. Farias-Neto A, Dias A, de Miranda B, de Oliveira A. Face-bow transfer in prosthodontics: a systematic review of the literature. Journal of Oral Rehabilitation. 2013;40(9):686-692.
9. Pattanaik S, Pattanaik B. Internal Characterization of Denture Base by Using Acrylic Stains and Tissue Paper. The Journal of Indian Prosthodontic Society. 2011;11(3):202-204.
10. Sanjeevi J, Rizwaan N, Subhashini M H R. Dimensional changes of self-cure acrylic when subjected to alcohol, listerine, and chlorhexidine. Drug Invention Today. 2019;12(2):289-292