Esthetic Dentures : A Case Report

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Abstract: Characterization is a procedure in which the character or collective qualities of a person are introduced in the complete denture, either by modification of teeth or denture bases, to make it appear more natural for that particular person. Despite the fact that solutions to functional and comfort problems are often available, successfully restoring the appearance of an edentulous patient remains a challenge. Esthetics pertains to the sense of the beautiful or the science which deduces from nature and tastesthe rules and principles of art. Characterization of an artificial denture is required to give the denture a more natural appearance. This article describes the laboratory procedures for internal characterization of denture base in a removable prosthesis using stains and incorporated in the heat cure polymerizing denture base resin at the stage of packing.

Key words: Characterization, Denture Base, Artificial Teeth, Acrylic Stains, Pigmentation.

INTRODUCTION

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.” As said by Frush and Fisher, “the environment of the teeth is as important as the tooth itself.” Carlsson et al found that esthetics was the factor most responsible for complete denture success. Thus the two elements that must be considered in denture esthetics are teeth and supporting denture base. Complete dentures must be esthetic as well as functional. Hardy stated that, “To meet the esthetic needs of the denture patient, we should make the denture teeth look like natural teeth.” Complete denture can be characterized by two basic methods.

1. Characterization by selection, arrangement and modification of artificial teeth.
2. Characterization by tinting the denture bases.

1. Characterization by selection: (arrangement and modification of artificial teeth) The teeth can be modified to harmonize with the patient's age, sex, and personality to provide subjective unity. Fisher said that gender, personality, and age can be used as guidelines for tooth selection, arrangement, and characterization to "enhance the natural appearance of the individual.

2. Use of tints in the denture bases: Several methods have been used to tint denture base resins to achieve a more natural appearance. Usually heat curing or auto-polymerizing resins of various shades or colours are painted on the denture base or are shifted on to the mould during denture construction to obtain a tinted denture. Most widely used tints today are the various pigments, which are placed within the original mould chamber, so they do not affect contours

Ideal requirements of denture base tinting material:
1. It should be readily miscible with methyl methacrylate resin.
2. It should be non-toxic.
3. It should not add appreciable bulk to denture bases.
4. It should be stable and non-fading.
5. It should be resistant to loss from abrasion in cleaning and in normal function.
6. It should not alter the properties of the denture base resin.

Most widely used tints are the Kayon dental stains or tinting resins. One Kayon Kit contains five shades. Additional shades aside from the standard Kayon Tints can be mixed from earth colour pigments which enable the dentist to match virtually any colour of gingival tissue.

CASE REPORT

A 57 year old male patient presented to Department of Prosthodontics, Institute of dental sciences, Bareilly with a chief complaint of difficulty in chewing and unpleasant smile of the old dentures (Fig: 1). Intraoral examination revealed that the patient was completely edentulous in maxillary and mandibular arches. The objectives of treatment regarding the dental condition were the preservation of bone, development of the normal mechanism of chewing, speaking and swallowing and the establishment of normal facial characteristics and smile and the fitting of a functional prosthesis with adequate retention, stability and support. To fulfil these criteria a set of complete denture with characterization as the treatment option was discussed with patient. It was decided to fabricate characterized complete denture with bilaterally balanced articulation.

Both dentures were fabricated in the usual manner till jaw relation record stage. Jaw relation records were made and then casts were...
mounted. In order to improve facial characteristics and smile of the patient it was decided to characterize the dentures. Tooth selection and setting was done by following the basic principles to simulate a natural dentition, then followed by flaking. Buccal and labial core of the waxed denture was painted with die stone. After flaking, a complete dewaxing was done.

Shade matching was done using the photographs of the alveolar mucosa. By mixing the different stains (red, purple, yellow and brown with the basic color i.e clear acrylic). Three colour shades were obtained for marginal gingiva, attached gingiva and denture base by adding tints in heat cure acrylic monomer. Application was done with a small camel's hairbrush wetted with monomer (preferably heat cured) or by dusting and wetting with dropper in the mould and the imprints of the ridge-lap portions of the artificial teeth.

First apply pink colour acrylic around neck of the artificial teeth, allow it to stand for about 2-5 minutes to allow the monomer to evaporate. After this a layer of deeper reddish brown color is dispensed against the mould for Simulating melanin pigmentation adjacent to the previously dispensed layer and monomer was applied to form outer layer of gum that mimics attached gingiva. This was done by adding brown and purple stains to the heat cure acrylic, followed by packing the rest of the flask with the appropriate color (normal pink) of acrylic resin. The denture was then cured, finished and polished (Fig: 2). The characterized areas should receive a minimum amount of polishing. The transformation in the appearance of the new denture was noticeably seen.

The dentures were inserted with minor adjustments and the occlusion was checked introrally (Fig: 3). Written oral hygiene instructions were given and explained to the patient. Patient was highly satisfied with the characterized denture appearance compared with the conventional old denture (Fig: 4). The patient was recalled after 24 hours and then asked to follow a 3-month regular recall schedule.

DISCUSSION

The prosthodontic management of completely edentulous patient with characterized denture prosthesis requires a broad base of knowledge to produce a lifelike appearance compared with conventional denture that produce artificial look. This case report described method for fabrication of characterized complete denture prosthesis for a completely edentulous male patient.

Frush and Fischer wrote that gender, personality, and age could be used as guidelines for tooth selection, arrangement, and characterization to enhance the natural appearance of the individual. The main objective of complete denture prosthesis in edentulous patient are to improve the esthetics, phonetics, and masticatory function. A characterized denture was the treatment of choice for this patient, because the objectives were to restore function, esthetics and moreover patient insisted for natural appearance of his dentures. The involvement of the patient in treatment decisions is clearly a major determinant of treatment success for complete dentures. Characterization of denture base can also be done by incorporating imprints of rugae areas, gingival sulcus, interdental papillae etc. and by incorporating the colors and shades of the natural oral tissues. In today's dental world, treatment planning must begin with well-defined esthetic objectives. By beginning with esthetic, and taking into consideration the impact on function, structure, and biology, the clinician can use the various skills in dentistry to deliver the highest level of dental care to each patient. The dynesthetic and dentogenic concept along with unity with variety when applied provides a more natural, harmonious prosthesis, which not only is desired by patients, but also is a quality of care they deserve.

Indication for characterization of denture base.
1. Patients with an active upper lip and a prominent pre-mayillary process.
2. People who may expose gum tissues areas during their performances like actors.
3. The psychological acceptance of the dentures by the patient.

The thickness and colour of the outer layer of the denture base will affect the extent of tint. If the outer layer of heat cure denture base resin is pink, the tinting has to be slightly darker. The advantages of this technique are that the stains are incorporated deeply in the denture and it will not be easily removed by subsequent grinding procedure during finishing and polishing of the denture. It allows use of separating media over the surface of the mould which prevents impregnation of the plaster into acrylic resin. As the tinting is done directly during the packing of the heat cure denture base resin, it minimizes surface porosities. Characterization can be appreciated during the staining procedure.

CONCLUSION

Skilful tinting procedure can produce excellent results, but a poorly executed tinting procedure may, however, ruin an otherwise acceptable denture. This technique describes method of internal characterization of the denture base by using acrylic stains which are incorporated in the denture base at the time of packing stage. Advantages of this method are stains are incorporated deeply in the denture and the operator has a control over extent of the tint.

REFERENCES


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LIST OF PHOTOGRAPHS

Fig: 1 Pre-operative view

Fig: 2 Polished denture with characterization

Fig: 3 Intra-oral view

Fig: 4 Post-operative view