

Characterizing a complete denture: A case study.

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Abstract

As prosthodontists, we at all times focus on achieving lifelike aesthetics in veneers, ceramics, and crown and bridge prosthesis. Dentures are frequently overlooked when it comes to achieving a truly natural appearance for the patient. The accomplishment of complete dentures can be assessed by the patient from two distinct perspectives: functionality and appearance. This article aims to emphasize clinically relevant alterations of removable prostheses that should be considered in daily practice.

Keywords: Characterization, Denture, Dentogenic, Dynesthetic, Esthetics.

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Introduction

Denture characterization involves altering the shape and shade of the denture base and teeth to create a more natural-looking out-look. The surrounding environment of the teeth is just as crucial as the teeth themselves^[1].

For an edentulous patient, a complete denture prosthesis replaces all the teeth and surrounding structures in the upper or lower jaw. The main goal of a complete denture prosthesis for an edentulous patient is to restore lost oral hard tissues, such as teeth, and soft tissues, thereby enhancing aesthetics, speech, and chewing function. As prosthodontists, it is our duty to inform patients about the options for characterizing their complete dentures to achieve a more natural appearance that aligns with their preferences, rather than looking artificial^[2].

The two primary methods for characterizing a complete denture are: 1. Adjusting the arrangement, selection, and modification of artificial teeth, and 2. Tinting the denture bases^[3].

A method for tinting acrylic denture bases to mimic gingival color was first suggested by Pound. To replicate the melanotic

pigmentation of the gingiva, Kemnitzer employed a blend of blue and brown stains.

Denture base tinting materials must be non-toxic and easily mixable with methyl methacrylate resin. They should not significantly increase the bulk of the denture bases, and must be resistant to abrasion from cleaning and normal use. Additionally, the tinting materials should be stable, non-fading, and should not alter the properties of the methyl methacrylate resins^[4].

Case Report

A 67-year-old male patient came to the Prosthodontia department with a primary concern about his ill-fitting denture (Fig. 1). He was also unhappy about the artificial appearance of the denture (Fig. 2 and 3). The patient was edentulous for last 6 years and has smoking habit for last 25 years.

Intraoral examination revealed high well-rounded ridges in both maxillary and mandibular arches and increased deposition of melanin, mostly on the gingiva, followed by buccal mucosa, lips, and hard palate.

Fabrication of a conventional complete denture with characterization of denture base

was planned. The patient was told about the treatment plan and he gave his consent for adding intrinsic stains to the denture base mainly in the cervical and attached gingiva area to give natural appearance.

Clinical steps of both the dentures like primary impression, secondary impression and jaw relation were recorded in conventional manner. Following this, teeth arrangement was done in the conventional way. After try in, flasking and dewaxing procedure was done.

For denture base characterization, a small quantity of clear heat cure monomer was taken separately into a dappen dish and acrylic paints were mixed to achieve a closely harmonized tone for the patient's oral mucosa. To get the brown colour, commercially available blue, red, orange and green acrylic paints were mixed. After dewaxing, this pigmented acrylic was painted around the neck of the teeth with paint brush and the remaining part was packed with clear heat cure acrylic (Fig. 4 and 5). After the trial packing, the denture was processed using conventional methods. Polished denture delivered to the patient and minor adjustment were made (Fig. 6 and 7). Patient was highly satisfied with the appearance of the new denture (Fig. 8).

Discussion

Prosthetic management for a completely edentulous patient using a characterized denture prosthesis requires extensive knowledge to create a more lifelike appearance, as opposed to the artificial look of conventional dentures. This case report details the process for fabricating both conventional and characterized complete denture prostheses for a fully edentulous male patient^[5].

A key aspect of creating dentures that are visually appealing involves the methods used to characterize them. Customizing dentures can significantly enhance patients' confidence and promote greater acceptance of complete dentures due to their more realistic appearance^[4].

In the realm of research on characterized dentures, Pound was the first, in 1951, to intrinsically characterize denture base resin by blending coloured methyl methacrylate polymers into the monomer, a method popularized as the "sift-in" technique. However, there were some drawbacks: predicting the effects was difficult until the denture was processed, a continuous flow of monomer over the labial surfaces of the mold led to the final impregnation of plaster into the acrylic resin, and there was a risk of crazing in the teeth.

The approach proposed in this paper modifies Pound's technique. Rather than blending the tinted polymer with monomer using the sprinkle-on method, individual tint mixes are incorporated within the clear heat-cure acrylic and selectively painted^[6,7].

Conclusion

The primary benefit of this technique for tinting the denture base is its simplicity, requiring no specialized equipment or tools. The transparent denture base mirrors the natural colour of the oral mucosa, providing a more authentic appearance to the denture. This technique is also applicable for characterizing removable partial dentures.

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FIGURES



Figure 1.



Figure 2.



Figure 3.



Figure 4.



Figure 5.



Figure 6.



Figure 7.



Figure 8