



## NATURAL DENTURE: AESTHETICS IN COMPLETE DENTURE

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**ABSTRACT**

Advances in the field of dentistry have opened gates to a newer esthetic world but the area of edentulous esthetics still remains quiet untouched. Successfully restoring the appearance of an edentulous patient remains a challenge.

The glossary of prosthodontic term defines esthetics as the branch of philosophy dealing with beauty. (GPT-9) Characterization of denture base, as it implies, is a denture base that simulates the color and shading of natural gingival oral tissues. Natural looking dentures are appreciated by patients, and are good motivational tools for denture compliance. The glossary of prosthodontic terms defines denture characterization as modification of the form and color of the denture base and teeth to produce a more lifelike appearance. (GPT-9) Several methods have been advocated by different specialists for the reproduction of gingival characterization in artificial dentures. The method used for characterization of denture in this article is the sift-in method.

**KEYWORDS** : Esthetic denture, characterization, intrinsic staining, rugae, waxup

**INTRODUCTION:**

The glossary of prosthodontic terms defines esthetics as the effect produced by a dental prosthesis that affects the beauty and attractiveness of the person.<sup>[1]</sup> When the term "esthetic" or "unesthetic" is used, the connotation is that something is seen which is pleasant or unpleasant.<sup>[2]</sup> When acrylic resins were first used, there was not much experience and background or information on oral pigmentation known to the world of dentistry and so people were content with the shiny light pink colored denture which was described to be the color of gingiva in the literature. Any deviation from this light pink was considered pathologic.<sup>[3]</sup> But researches have shown that there can be a vast range of variation in the color of gingiva.

Denture esthetics mainly lay stress on two things, the teeth and the supporting denture base. The teeth of the denture should resemble the natural teeth as closely as possible. Characterization of the denture base further enhances the natural appearance of the patient which gives a psychological boost to the patient and also helps the patient in getting more easily accepted with the denture in the society. Complete dentures do not have to look artificial for recent innovations in materials can imitate the "natural look" of pigmentation and provide a true characterization of the denture base.<sup>[4]</sup>

Complete denture must be esthetic as well as functional. Hardy stated that, "to meet the esthetic needs of the denture patient we should make the teeth (denture) look like natural teeth (the patient's)." The various methods of characterization are characterization by selection, arrangement and modification of artificial teeth and characterization by tinting the denture base.<sup>[5]</sup>

**Clinical report:****2 cases have been described to enhance esthetics by fabricating "natural denture".**

Case 1: A 72 years old patient walked into the dental clinic to get new complete denture made. She had been edentulous for 13-14 years and had been wearing denture since last 12 years. She had used 2 sets of dentures and had come to get a 3<sup>rd</sup> set made as she was not satisfied with the esthetic front of her previous denture as it was not lifelike in appearance. On intraoral examination she had tapered ridge form. (Fig 1)

Case 2: A 38 years old patient walked into the dental clinic to get a complete denture made. He had been in an accident and had lost some of his teeth during the accident and some teeth had to be extracted. He had been edentulous for a period 3 months. The patient was quiet young and so his major concern about the denture was its appearance. He wanted a highly esthetic and natural looking denture so that no one comes to know he wears denture as he was young. On intraoral examination he had oval ridge form. (Fig 2)

**Technique:**

An impression is defined as an imprint or negative likeness of the teeth, of the edentulous areas where the teeth have been removed, or of both, made in a plastic material that becomes relatively hard or set while in contact with these tissues,<sup>[6]</sup> and hence the impression recording step is of utmost importance and it was carried out using the selective pressure technique. The five objectives of an impression are to provide retention, stability and support for the denture, provide esthetics for the lips, and at the same time maintain the health of the oral tissues.<sup>[7]</sup> The natural form of the ridge and tissue in harmony with the muscles form a system which helps in mastication and so it is very important to maintain the contours in the wax-up as per the underlying contours as that also helps in stabilizing the denture. Primary impression, final impression, jaw relation and related laboratory steps were done by using the conventional methods. Reference photos of the time when the patient was dentate were also seen to include any particular feature which was peculiar to the patient in his dentate phase of life. Teeth arrangement (using VITA teeth set as it is available in wide range of sizes, colors and are layered, thus enhancing the esthetics) was done using the basic conventional steps and relating with the patient's old records. The wax try in is a golden opportunity for the dentist and the patient. Preparation of the trial denture for try-in involves contouring the wax on the trial denture to produce a denture base form that reproduces the contour of the original tissue in the edentulous mouth.<sup>[8]</sup> The wax-up step gives the patient a chance to see what he is going to get. The dentist also gets the opportunity to check the phonetics, retention, support, stability, occlusion, smile, cheek support and he can eliminate and rectify any errors he may find at the stage. Wax was adapted to cover the neck of the teeth and extended it on the flanges of the trial denture.<sup>[8]</sup> Contouring of wax

was done in the form of abrupt curves, most being subtle and freeflowing.<sup>[9]</sup>

The free gingiva or marginal gingiva, attached gingiva, muco- gingiva, interdental papillae, muco- gingival junction, root eminences, recession of gingiva, cleft in cervical region and the attachment of muco-buccal folds on the facial surfaces, lingual frenum, lingual margin proximal to the posterior teeth and the contour in approximation with the anterior teeth were carved according to the concerned case and the esthetic requirement. The sulcus was produced by inserting a no. 23 explorer tip, between the tooth and wax at the gingival margin moving it mesiodistally. Free gingival margin at the neck was carved flat and tight to the tooth neck and then blended directly into the base material.<sup>[10]</sup> From an esthetic standpoint, carving done in this manner have a marked naturalness partially because saliva adheres in this area more naturally, enhancing the blend between the tooth and gingiva and dispersing the colors more harmoniously.<sup>[11]</sup> Excess wax between the margin and borders, representing the attached gingiva and muco-buccal fold was removed. The canine eminences were carved to be prominent while the other contours were not that accentuated.

The palatal surfaces should be contoured so that the patient can regain the maximum sensation of contours present before the loss of the dentition. It can be done by incorporating rugae pattern in the wax-up. To add the rugae pattern an impression was made using putty material of an ideal cast having rugae and this impression is now routinely used to replicate the rugae pattern in upper dentures by flowing wax into the index and the inverting the template on the waxed up trial denture. The rugae were tinted with a different color to enhance them. Labial frenum was also carved during wax-up procedure to give the denture more natural appearance. Stippling were added using the toothbrush technique. Inter-dental flossing, finishing and polishing of the wax-up was done to get a nice smooth and polished surface. Flasking and de-waxing procedures were carried out by the conventional method.

Anatomic contouring is incomplete without incorporating natural oral structure textures. To achieve this, various heat cure Intrinsic resin stains (MP Sai Enterprises, Mumbai, India) were used. To further enhance the naturalness of the denture, veins (DPI, Mumbai, India) were also incorporated. Several methods have been used to tint denture base resins to achieve a more natural appearance. Skillful tinting procedures can produce excellent results. 7 stains were used to carry out the tinting procedure: ivory, light brown, dark brown, light pink, natural pink, dark pink, medium pink. The method used was based on the sift-in technique of POUND (1951).

After tinting one side of the denture, complete the other side in the same manner. Continually refer to the tinted side for comparison to avoid a pronounced difference in color and distribution of the tinting resin. Place a plastic sheet over the tinted flask, and allow it to set for 15 to 20 minutes before packing (using IVOCLAR BPSTRIplex R) the denture base. If the denture is packed too soon, the tinting resin can be squeezed out of the mold, or the distribution modified. Cure the denture, and finish and polish it in the usual manner.<sup>[12]</sup>

#### DISCUSSION:

If carving and contouring are accomplished skillfully it is much easier to evaluate the appearance and speech of the patient during try in appointment.<sup>[8]</sup> The principle problem with waxing a trial denture for try in are related to covering up too much of denture teeth with wax, failure to develop anatomic contour, and using wax that may be discolored from overheating, all of these contribute to trial denture which is not esthetic and hence these should be avoided.<sup>[8]</sup> In the above mentioned case carving was completed according to the anatomical form incorporating features like rugae (Fig 3), labial frenum, blunt interdental papillae, marginal gingiva, attached gingiva, muco- gingival junction, gingival cord, recession of marginal gingiva, cleft in cervical region, lower frenum

and stippling. (Fig 4,5)

Post de-waxing tinting was carried out by sifting the heat cure resin which was incorporated by pigments onto the mold during denture construction to obtain a tinted denture. (Fig 6) The objective of staining is to stimulate the colors we see in the living tissues as closely as possible. The materials to be used have a different degree of translucency, texture, and body than living tissue.<sup>[13]</sup> Here we are equivalent to a portrait artist who reproduces different skin tones by means of oil paints. The artist doesn't use the same shade of pink for the entire face, like wise using the same color for the entire denture doesn't make it look lifelike and hence combination of heat cure stains in varying proportions provides a more natural and realistic appearance. Skillful tinting procedures can produce excellent results, but it is equally true that poorly executed tinting can produce garish results, much worse than no tinting at all.<sup>[12]</sup> Staining can be done on the internal surface or on the external surface of the labial and buccal flanges of the denture. In internal surface staining, the tinting is done during packing of denture and various shades of resins are added. In external surface staining, dentures are stained after processing, but the disadvantage in this is that they might be removed by subsequent finishing procedures.<sup>[14]</sup> Packing was carried out by compression moulding technique. The denture is finished and polished and delivered to the patient. (Fig 7, 8) Excess grinding or polishing of the processed denture will remove the anatomic contours and staining. The wax-up does not require the skill of an artisan.<sup>[15]</sup>

#### SUMMARY:

The treatment with characterized complete denture prosthesis can produce a more lifelike or natural appearance compared with conventional denture that produces artificial look in edentulous patients.<sup>[5]</sup> It is important to remember that to achieve the best results the carving and tinting both procedures should be done carefully keeping the features (intra oral and extra oral) of the patient in mind. To sum it all up a statement made by Fisher is most apt, "It is the purpose of those who have labored diligently and long in the pursuit of a more workable basic principle in esthetics to encourage all of those whose tasks take them into the field of prosthodontics to consider the opportunity to lift the patient out of the category of a geometric figure and restore to him his true quality of a living and breathing man or woman, with an individual personality and either the dignity of his years or the freshness of his youth".<sup>[2]</sup>

#### FIGURES:

Fig. 1: Case 1 first appointment



Fig. 2: Case 2 first appointment



**Fig.3: Palatine Rugae****Fig. 4: Blunt interdental papillae, marginal gingiva, attached gingiva, muco gingival junction, gingival cord****Fig. 5: Cleft in cervical region, labial frenum, stippling, gingival cord, pigmentation (by intrinsic staining method)****Fig.6: Intrinsic staining****Fig.7: Case 1 after denture insertion****Fig.8: Case 2 after denture insertion****REFERENCES**

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