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PERSONALIZING COMPLETE DENTURES!! A MYTH OR REALITY?

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ABSTRACT

Complete edentulousness is a physical disability as detailed by the "World Health Organization". The ubiquity of tooth loss in the Indian populace is 91.2% in the above 65 years, age group. Edentulous patients agonize from compromised function, appearance, and a decreased quality of life. Thus, making a denture can be functional and comfortable, however, it can be repulsive in the eyes of the wearer. Therefore, the characterization of complete dentures has become an emerging trend in prosthodontics to achieve superior aesthetics in edentulous patients. Several methods have been advocated in an attempt to customize the artificial teeth and dentures bases according to the patients' needs. Tinting the denture bases to reproduce the color and shade of the natural oral tissues is being commonly done in dental laboratories. This paper presentation features a method of matching the shade of the gingiva to as near as normal using pigments/stains and incorporating the same shade using the usual staining methods. This method can help to enhance the aesthetics of the complete denture wearer successfully.

CASE REPORT

INTRODUCTION

A state of absolute loss of teeth puts forward in the patient events full of compromise in function, appearance, and integrity of the masticatory system. It also leads to a decrease in the quality of life. A functional and esthetic sequence is differently recorded by the patient. Impressions of the edentulous state may range from reactions of disturbance to reactions of serious disabilities because of many notice complete misplacement of teeth as compared to the loss of a body part. Thereupon, the essential therapy must address a range of biomechanical problems that involve a wide range of individual resistance and awareness.[1]

Fabricating a denture for such individuals can be functional and complacent, however, it can be objectionable in the opinion of the wearer.[2]

A dentist is described as a dental artist which signifies his role as the one who could change the look of any simple, average-looking denture to a natural, pleasant, and personalized one. It can be made unique to the person. This procedure can be termed as "characterization of dentures". Characterization of complete dentures has become quite easy and helpful in fulfilling the desires of patients. It has become an emerging trend in prosthodontics to achieve superior aesthetics in edentulous patients.[2] Several methods have been advocated in an attempt to customize the artificial teeth and dentures bases according to the patients' needs. Tinting the denture bases to reproduce the color and shade of the natural oral tissues is being commonly done in dental laboratories.[2] Characterization intends to accomplish a natural presentation of the denture by developing an impression of realism in the delighted look.

Hardy suggested, "To meet the aesthetic needs of the denture patient, his denture teeth should look like the patients' natural teeth." Martone quoted that "the key to esthetics lies in its asymmetry".[3] Thus this paper presents a case report featuring a method of matching the shade of the gingiva to as close as possible to nature using stains and incorporating the same shade using the usual staining methods. An aim to fulfill his aesthetic in addition to functional requirements was attempted.

METHODOLOGY

A patient aged 67 reported to the Department of Prosthodontics and Crown and Bridge, of a Dental College located in Chennai to replace his previous dentures. He complained of a loose upper denture as well as pain and his inability to chew food due to some sharp areas in the lower denture. A desire to mimic characteristics of his original teeth, besides, ease in chewing food was expressed by the patient. The patient had made a mention of the color and size of his natural teeth. He even brought a smiling photograph of himself along and wanted us to arrange his teeth as were earlier. We as dental professionals decided on characterizing his dentures along with providing him function.

To begin with, the fabrication of a complete denture initial maxillary and mandibular impressions were made using impression compound following which border molding was performed using green stick compound and a final impression made in adjunct to zinc oxide eugenol impression paste. Jaw relations were registered (Fig.1a). Prior arrangement of prosthetic teeth, time was spent and efforts made to satisfy the patient by taking his consent over the size, shape, and color of artificial teeth. Once they were selected a try-in was done. The trial dentures were checked for aesthetics and phonetics. The patient's consent was obtained. He was satisfied with the denture and the procedure for processing them was carried out. Wax-up, carving, and polishing of the trial dentures were completed. To mimic the gingival architecture festooning and stippling were provided (Fig.1b). Laboratory steps of denture processing were initiated.

The waxed-up dentures were flasked using Type-II plaster. Once the plaster was set the maxillary and mandibular wax dentures were covered with heavy body putty consistency material to preserve the wax carving, festooning, and stippling incorporated (Fig.2a, b). The flasks were then immersed in the de-waxing unit and the procedure of de-waxing was carried out. The halves of the flasks were opened and cleaned thoroughly with soap water to remove any wax residues.

To initiate the procedure of stain application, a layer of separating medium was applied to the two halves of the flask. Stains that were used for this purpose were dedicated only to incorporating artificial stains into

dentures (Denture Art System Pack, By Dreve, Germany) (Fig.3). The stain kit contained shades such as white, pink, light blue, red, yellow, brown, and a natural opaque color along with a liquid. They also provided veins in addition to a graduated jar for measurement, a spatula for mixing along with a brush for application. A booklet was provided for reference.

To commence with, selected areas of the counter mold were painted sectionally with the resin. The stains were colored auto-cure resin polymer coupled with a liquid (monomer). The desired color was mixed into the liquid in a ratio of 1.6:1 by volume and applied with the help of the brush provided. The area around the cervical margin of the tooth was painted pink to denote the marginal gingival. Above this area, a reddish stain was applied to represent the mucogingival junction and subsequently, the attached gingiva was indicated with a blend of blue and a tinge of brown to denote melanin pigmentation in the region (Fig.2 a, b). The frenum was represented as light pink with a mix of veined red acrylic.

Meanwhile, heat cure resin polymer was added and mixed in a mixing jar with the monomer in the ratio of 3:1 by volume. The stains were left in position for around five minutes after which they turned into a rubbery stage. Meanwhile, the mixture in the jar arrived at the dough stage and the material was packed into the mold space and closed under pressure. After a stage of bench curing the flasks were immersed in the curing unit. A short curing cycle was performed for the processing of the resin. After bench cooling to room temperature, the processed dentures were retrieved, finished, and polished (Fig.4a, b, c). The denture was then inserted intraorally. The patient was quite satisfied with the aesthetics (Fig.5). He was recalled subsequently at an interval of two days, a week, two weeks, and a month to check for functional efficiency.

Limitations - The staining technique was tried on a single patient. More patients (sample size) and various other methods to stain and mimic hard and soft tissues should be the area of focus. Studies involving the use of spectrophotometers can be researched upon.

DISCUSSION

Prosthodontics is the art and science of designing smiles. As a rapidly expanding science and art, a prosthodontist serves to bring back the smile and functional efficiency of teeth and is still evolving. One such emerging area is the imagination of designing dentures exclusively for individuals commonly termed as characterization. It is "a modification of the form and color of the denture base and the teeth to produce a more lifelike appearance".[4]

Dental art is considered to be great. Characterization is the most significant process, implies the importance of the natural size, arrangement, and color of artificial teeth replacing the contour, structure, and color of the surrounding tissues to minimize the "denture look" of the prosthetic denture.[3,8] It creates an appealing emergent silhouette of the teeth through the gingiva. As every patient has a peculiar essence, dentures too must be peculiar to achieve maximum form, function, and artistic taste.

The literature is proof wherein various authors have tried several methods to incorporate pigments indentures to bring out the natural look. It began in the year 1951 when Pound was the first to tint denture bases intrinsically by "sifting" colored polymer powder into the monomer but resulted in impregnation of the plaster into acrylic resin and crazing of teeth.[5] Procter in 1953 introduced four different color blended powders by studying the gingival colors using an automatic color camera.[6] In 1955, Johnson separated the denture base from the teeth during the packing and staining procedure and closed the halves together after trial packing.[6] Kemnitzer, 1956 introduced melanotic

pigmentation by a combination of blue and brown stains.[6]

Canines are considered as beauty teeth. They are the cornerstone of the arch. Setting modifications during the arrangement can bring about refreshing changes in the patient profile. Diastemas created between teeth, incisal edge grinding, in addition, to can't in the midline, the recession of gums can be incorporated into dentures. Furthermore, restorations and fillings can also be ingrained into a set of teeth.[2,7]

A technique described here utilizes the thickness of the denture base to determine the intensity of the tint. The color of the packing material used and the saturation of the stain are directly dependent. A pleasant pink color of the heat cure can regulate the stains that are going to be applied internally. An advantage of this method is the control over the application of stains that gives predictable 'WOW' results. Also, the kit contains assorted shades that can be mixed before application to exactly determine the hue. The stains have been incorporated deep into the denture, thus easy removal during the procedure of finishing as well as polishing is at bay. Application of putty over the polished and characterized surface of the waxed-up denture and teeth prevents the impregnation of plaster into the acrylic resin. Furthermore, since the stain application is performed during the stage of packing of the heat cure denture base resin, surface porosities are minimized.

A disadvantage of this technique is that it requires proper positioning of the flask halves till the initial set of the stains have been achieved after which the heat cure resin dough can be packed into the mold space. A rush into the packing of the dough may lead to the displacement of the tints into undesirable areas and a mixture of the stains and heat cure acrylic dough would seem displeasing.

CONCLUSION

Giving a characteristic organic twist to false teeth plus containing artificial restorations in them gives a natal look to the patient. He is introduced to a higher level of confidence, a sense of satisfaction as well as eliminates his apprehension towards dentures. The ability to distinguish between true and false is disguised thus making him hopeful of them when involved in social gatherings and person. In addition to incorporating various changes in the position of the teeth, a prosthodontist stands apart by his talent to bring choppers to life by attempting to resemble the underlying tissues. This signifies his capability to portray his artistic skills by making dentures look real, and analogous to natural teeth and gingiva. Thus, the case report described discusses an easy and simplified method to stain dentures for every patient desiring a youthful look of him/herself.

CONFLICT OF INTEREST – None declared

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Figures:

Fig.1a: Upper and lower articulated waxed-up dentures
Fig.1b: Close-up view of the incorporation of wax-up, carving and festooning

Fig.2a, b: Putty index placed over the tooth surfaces and wax-up. Stains applied near the cervical areas on the de-waxed halves of the flask

Fig.3: The stain set

Fig.4: Characterized, finished and polished dentures in right, mid and left views

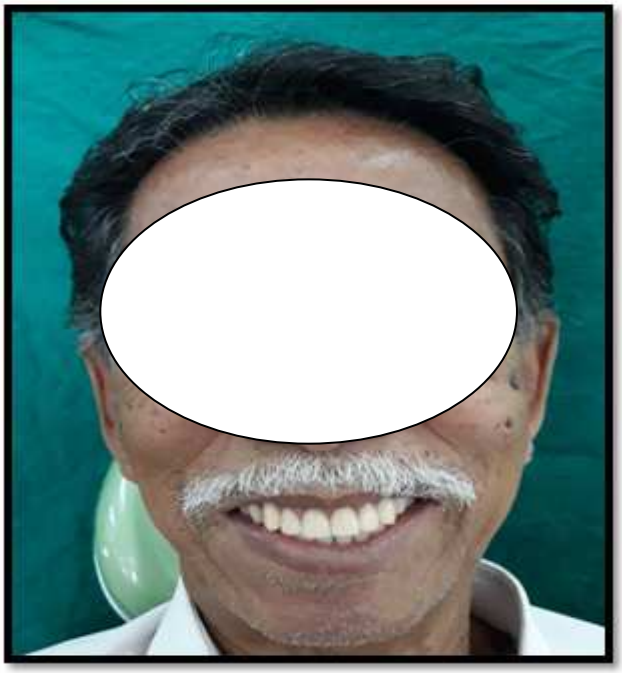

Fig.5: Dentures in a happy patient!