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Review Article

A Final Esthetic Validation Technic in Fixed Prosthodontics for Special Needs Patients

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Abstract: Esthetic consideration is an important aspect for special needs patients who have deteriorated self-image with a loss of self-esteem and a lack of confidence in the eyes of others. In this situation, traditional protocol with wax-up and mock-up is difficult and not sufficient to validate the esthetic project because of major difficulties. Another technique is necessary to specify, simplify and take it into account with special needs patients. In this context, this paper presents a new system for final esthetic validation of fixed prosthetic restorations. This procedure uses resin coping carrying tooth wax with ideal form. This system is transferred directly in mouth for trial. It can be modified by the dentist until satisfaction by modeling the wax. After validation, it can offer a good way for the dental technician to reproduce exactly the project validated in mouth on final restoration. Final esthetic validation (FEV) technic is a good methodology to improve the esthetic approach for special needs patients. This procedure is safe, cheap, and ideal to be sure of the patient point of view.

Keywords: Special needs patients, esthetic validation, esthetic project, wax-up.

INTRODUCTION

Esthetic demands in smile design continually rise and have been shown to play a major role in the perception of beauty and attractiveness. They play an even more important role in patients with special needs. These patients, including patients with physical or mental disabilities, but also young or elderly patients in institutions, often have a deteriorated self-image with a loss of self-esteem and a lack of confidence in the eyes of others. However, the management of an aesthetic rehabilitation is heavy and complex to implement. Several factors can influence smile esthetics need to be taken into consideration: tooth form and position, smile line, incisal embrasures, symmetry of contra-lateral tooth margins, and gingival display [1, 2].

A comprehensive treatment, with proper diagnostic must be planed via the utilization of specific procedures to improve unpleasing tooth shape, form, position, and color [3, 4, 5]. A good treatment plan is based on the diagnostic wax-up and, eventually, the mock-up helping dentists to determine the future restoration aspect [6, 7]. Another important role of this diagnostic part is in the fabrication of provisional restorations leading both esthetic and functional aspects [8]. Moreover, occlusion and phonetics can also be evaluated until practician and patient satisfaction.

On the other hand, communication between the dental technician and the dentist has always been the key to obtain a superior result in both esthetic and functional aspects. Communication is even as important factor as the other technical treatment aspect. Mock-up, wax-up, and photographs are some of solutions to transfer information for an optimal restoration [5, 8]. Dental virtual software can also be used to visualize the future prosthetic restoration [9, 10]. All these methodologies developed for esthetic consideration are ideal for most of clinical situations [11]. The

implementation of some of these sequences is difficult in patients with special needs. It can be too difficult or too hard-working for special needs patients, like seniors or handicaps patients. Some of them can have a lot of problems like low mouth opening, fears, anxieties of medical environment or dental procedures, and then, need to work quickly. Validation of aesthetics aspects must be fast, simple, and efficient. Moreover, many dental practices are not adapted for these special situations or are not equipped with digital tools [12].

The aim of this paper is to present a new protocol of final aesthetic validation in fixed prosthodontics: the FEV protocol, specially adapted for special needs patients. This predictable and time-effective technique consists of an acrylic resin coping carrying tooth-wax for validating the final esthetic aspect of the restoration.

TECHNIQUE

On the first consultation, an optical or a conventional impression allows to obtain the study models on which a key of old prosthetic restoration is made to prepare the first temporary fixed prosthesis.

The old prosthetic restoration is removed, and the tooth preparation is washed (Fig.1). The preparation is resumed to obtain an adequate design. After using a gingiva retraction paste system, an optical or a conventional impression of the preparation is made. The first temporary fixed prosthesis is realized.

The dental technician performed acrylic resin coping on the master cast model and waxed the system to obtain the tooth considering aesthetic criteria (Fig.2 and Fig.3). At the same time, it can also permit the validation of the tooth preparation, according to its limit position and parallelism design. This element is transferred and tried directly in mouth, positioning it on the preparation after removal of the temporary prosthesis. Teeth wax forms, contours, volume, and height can be modified, in only one step, directly in mouth until practician and patient satisfaction. Wax knife or other special instruments can be used, adding, or removing wax, to modify the aesthetic project on the coping system. Finally, when the system is validated, it is repositioned on the master cast model (Fig.4, Fig.5 and Fig.6). This system is a very good way to communicate with dental technician because the system is removable, and the dental technician can reproduce exactly the same tooth using silicone key or CAD/CAM technic to produce the final restoration (Fig.7). This final restoration is tried in mouth for validation and cementation (Fig.8).

Figures Legends

Figure 1: Old Restoration Showing Lack of Adaptation, Gingivitis and Unaesthetic Aspect

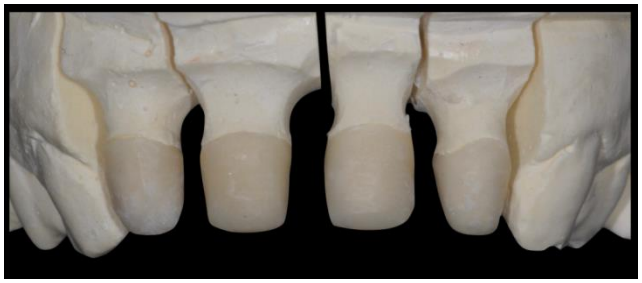

Figure 2: Acrylic Resin Coping on the Master Cast Model

Figure 3: Waxing of the Acrylic Resin Coping and Obtainment of Teeth with Aesthetic Criteria

Figure 4: Transfer of FEVT System Directly In Mouth and Form Modification

Figure 5: Modification of the System until Patient and Pratician Satisfaction and Validation

Figure 6: Final Validation in Mouth with the System

Figure 7: Final Fixed Prosthesis Obtained in the Image of the Validated System

Figure 8: Final Fixed Prosthesis in Mouth Smile View

DISCUSSION

Generally, it is very complicated to obtain aesthetic results that satisfy both the practitioner and the patients, particularly for patients with special needs. With final esthetic validation technique, the methodology allows to validate the prosthetic project directly in mouth and in only one step. The wax can be modified until the complete result desired. Moreover, it can offer a good way for the dental technician to reproduce exactly the project validated in mouth. On the other hand, this technique can permit also to verify the design of the tooth preparation axis and, can permit to check if material widths are available. In full-ceramic restorations cases, the wax can be mounted directly on the zirconia framework before cosmetic mounting.

FEV technique can also be used in cemented or screw-implant reconstruction to visualize implant axis or to specify prosthetic project before final prosthetic realization.

Another advantage of this system is the possibility to use it like coping system to obtain a better impression.

Additional advantages of this technique include capacity of modification at will of the tooth shape, contour, height/width ratio, dental midline, smile line, incisal and cervical embrasures, tooth position, width to length crown ratio, symmetry of contra-lateral gingival margins; possibility of clinical esthetic validation directly in mouth by patient and dentist at the same time; possibility to increase the means of communication with dental technician. Another advantage is the low cost of this technique associated with the esthetic validation in only one step. Furthermore, in an era where digital technology can facilitate prosthetic restorations, it is necessary to remember that some dental practices are not equipped with digital tools and that some cameras, particularly those with large heads, are not adapted to patients with special needs. In view of all these parameters, this new protocol could be a simple alternative technique for validating aesthetics in our most difficult clinical cases.

CONCLUSION

Final esthetic validation technic is an easy and relatively quick methodology to improve the esthetic approach. Moreover, it is a safe, cheap and an ideal procedure to be sure of the patient point of view. This simple technic can

facilitate the communication between the patient, the dentist, and the dental technician when the situation is blocked around aesthetic aspect. This new system is particularly well-adapted for special needs patients.

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