

CRITERIAS FOR ESTABLISHING AESTHETIC RESTORATION IN PATIENTS REQUIRING DENTURES

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ABSTRACT

The understanding of the oral rehabilitation principles leads to a complex approach of the patient, giving optimal aesthetic, biomechanical and biological results. The patient plays an important role in terms of taking responsibility for the aesthetic aspect. Restoring the aesthetic function involves knowledge of the facial parameters, the principles of restoring facial harmony as well as the geometric proportion of the artificial teeth. The aim of this study is to emphasize the importance of the patient's evaluation, based on the esthetic rehabilitation, the patient's perception and the clinician evaluation, so as to ensure the success of the prosthodontic treatment. Conception of the treatment The patients have been analyzed starting from diagnosis and rehabilitation possibilities so as to design the therapeutic concept. Before the beginning of the clinical stages, the evaluation of the patient must be done rigorously, using the current paraclinical investigation techniques. Discussions The success of the prosthetic treatment, from an aesthetic standpoint, requires knowing the patient's personality in order to predict the degree of psychological acceptance of the prosthetic restoration. The aspect of the edentation is reflected on the patient's behavior in society, by affecting the self-image and personality. Conclusion The notion of aesthetic or unaesthetic can be interpreted differently, depending on the degree of culture and perception of the notion of "beauty and symmetry".

Keywords: edentulous patient, aesthetic function, prosthodontic treatment

Introduction

The question is what does esthetics mean? The definition of „esthetic” could be „the skills and techniques used to improve the art and symmetry of the teeth and face to enhance the appearance as well as the function of the teeth, oral cavity, and face.”(1)

The patient plays an important role in terms of taking responsibility for the aesthetic aspect. The perception of aesthetics implies a broader vision of beauty and symmetry. The Japanese aesthetic concept simbolises imperfection,

incomplete and impermanent things. Ancient Japanese aesthetics uses „wabi—sabi” like denomination and could be view in all forms of Japanese art. „Perfection is imposible and impermanence is the only way”. (2) Current studies consider different landmarks in terms of elements of the prosthetic esthetics, which are extremely important. The extraoral and intraoral indexes provide the objective information which are used in the prosthetic restoration therapy. Certain indexes, used especially in orthodontics, have been designed to evaluate tooth loss and malocclusions. (3).

Studies conducted by J. Londono et al show that the golden proportion is not found in natural beauty. (4) All destruction of tooth tissue leads to the esthetical modification. (5,6,7)

Greenberg and Bogert believe that facial appearance plays an important role in oral rehabilitation.

Restoring the aesthetic function, especially in the case of the patients with edentulous space in the frontal area, involves knowing the facial parameters, the principles of restoring facial harmony as well as the geometric proportion of the artificial teeth. Some authors have a theory that focuses on the fact that old age is an important factor in the evaluation for removable prosthesis and the negative esthetical consequences are caused by patient dissatisfaction, regarding the psychological effect on removable prosthesis.(3)

Facial examination generates important data that allows the prosthetic treatment to fit into a set of facial parameters. Perfection and symmetry focus on the degree of culture and the mathematical concept of determining facial proportions. The general pathology which influence the oral status of the prosthodontic field, can lead to the restriction of certain medical procedures. (8) The patient's perception of aesthetic restoration depends on the degree of culture and the concept of establishing facial proportions.

Currently, oral rehabilitations are more focused on the experience of the dentist than on the studies carried out so far. (9,10) The evaluation of attitude of the teenagers regarding the risk factors for oral health could have a deep impact regarding the maintenance of the integrity of dental arches.(11,12)

The aim

The aim of the present study is to assess the importance of the patient's evaluation, based on the conception of the esthetic rehabilitation, the patient's perception and the clinician evaluation so as to ensure the success of the prosthodontic treatment.

Conception of the treatment

The treatment of oral rehabilitation consists primarily in three phases included in the treatment stages: the diagnosis, the execution of the treatment and the checkup of the patient. The first stage that is considered to be the most important one is the diagnosis and the establishment of the treatment plan, as well as the staging of the treatment. Given that any clinical situation has several possible therapeutic variants, choosing the optimum option represents a challenge because, besides the biomechanical and curative principle, aesthetic restoration is an important desideratum. Casting wax up is an important step in trying to convince the patient regarding the success of the prosthetic treatment. The actual stages of treatment must reflect the information given to the patient because the success of the prosthetic treatment depends mostly on the observance of the initial plan.

In these clinical cases we cannot talk about smile arch, but the two aspects that can be taken into account in terms of aesthetic restoration through prosthesis are lip line and gingival appearance, retraction of gingiva, the size of the teeth, the position of teeth, their color and morphology when there are antagonists of integrity, symmetry, overall professional evaluation. (fig.1,fig.2)



Fig. 1 Aesthetic changes



Fig.2 The occlusal impairment in all three planes

The patients with extended edentation present many different aspects of oral and prosthetic esthetics that would therefore be relevant in the oral rehabilitation. These patients require comprehensive treatment, including periodontal, odontologic and prosthodontic treatment.

The three important characteristics that can be taken into account in certain cases are: the aesthetic appearance of the teeth present on the arch, the morphology of

the present teeth, the facial symmetry, the facial features, the occlusion. In some clinical situations with edentations in the lateral area, the deviation of the interincisive line is observed due to the lack of occlusal stops in the lateral area. The uncorrespondence of the interincisive lines is an important landmark in terms of restoring the aesthetic aspect and to reestablish the static and dynamic occlusion. (fig.3)



Fig.3 Aesthetic and occlusal complications

In situations less favorable from the point of view of preserving the remaining teeth, the aesthetic restoration must be foreshadowed by making wax up and mock-up. The transposition of the wax-up into the

oral cavity has the role of previewing the prosthetic project before its initiation and the starting point in carrying out temporary restorations.(fig.4)



Fig.4 The clinical situation that involve the foreshadowing of prosthetic treatment

The success of the prosthetic treatment results in a fairly high percentage from the observance of the initial plan.

Discussions

If we understand the patient's personality so as to determine the various factors influencing his/her desire for esthetic correction, then we have a better chance to predict the degree of psychological acceptance of that correction.(13) Making removable prostheses involves an understanding of each patient's preferences through terms of their own perceptions. It is important for each clinician to take into account the aesthetic wishes of the patient when making removable prostheses or mixt dentures.

Despite of the importance of prevention in dental medicine, for patients with dental impairments, it remains a challenge in prosthetic medical practice. The success of the prosthetic treatment, from an aesthetic standpoint, requires knowing the patient's personality in order to predict the degree of psychological acceptance of the prosthetic restoration.

The facial esthetics and facial perfection are involved in modern dentistry, because they are considered an important feature in order to determine the facial ratios when planning dento-facial treatment.(14,15)

Before the beginning of the clinical stages, the evaluation of the patient must be done rigorously, using the current investigation techniques, such as: impressions of the arches and the exam of the diagnostic casts, extraoral and intraoral

photographs, facial images, the occlusal relationships with device and facebow, and a cephalometric radiograph. Any change in the oral cavity, occurring after surgery, can influence the prosthetic treatment in which the aesthetic restoration is involved. (16)

At the stage of mock-up in wax with teeth, the patient must be very open and express his/her wishes regarding the changes he/she wants to be done so as to improve the aesthetic aspect. Even a small degree of aesthetic dissatisfaction and the patient will remain with a permanent discomfort.

Patients who require oral rehabilitation, especially in the frontal area, feel a restraint regarding the exposure of the smile. Smile's aesthetic evaluation form has been designed to detect small dental abnormalities when patients are not satisfied with the esthetic aspect.

The psychological aspect of edentation is reflected on the patient's behavior in society, affecting his/her self-image and personality. The involved emotional aspects regarding the patients, who seek aesthetic restoration through prosthesis, are important.

To understading the oral rehabilitation principles allows the development of an ideal relationships between periodontal and dental structures that can provide optimal biologic and esthetic results.(17)

Perfection and symmetry focus on the degree of culture and the mathematical concept of determining facial proportions.

For an aesthetic prosthetic rehabilitation, all aspects of oral and

prosthetic esthetics esthetics must be evaluated. Therefore, the success in esthetics is based on a careful and an accurate complete diagnosis.

For the dentist whose practice focuses primarily or largely on esthetic procedures, there are additional, very particular considerations in the area of patient management.

The lack of prevention programmes could influence the prognosis of dental treatment.(18,19) The patients who have already had edentulous spaces must focus on maintaining the stomatognathic functions.(20).

According to the literature, age is directly related to tooth loss. The aging population is an important factor when evaluating the need for removable dentures. The patient dissatisfaction, the negative effects for speech and psychologic status are the consequences of the teeth's losing. (21) Biological and technical complications

are frequently observed in patients with fixed dentures.(22)

Conclusion

1. Through computer-assisted facial profile and smile design, a treatment plan combining esthetics, restoration, and remaining bone considerations is executed.
2. Making prostheses involves an understanding of each patient's preferences through the image of their own perceptions. It is important for each practitioner to understand the patient's aesthetic wishes when making removable prostheses.
3. The individuality and charisma of each patient is given by the preservation of the facial appearance by keeping the aesthetic aspects.

References

1. Aboucaya WA. The Dento-Labial Smile and the Beauty of the Face. No. 50. Academy of Paris, University of Paris VI; 1973;
2. Prusinksi, Lauren. "Wabi-sabi, mono no aware, and ma: Tracing traditional Japanese aesthetics through Japanese history." *Studies on Asia* 4.2 (2012): 25-49;
3. Cons NC, Jenny J, Kohout FJ (1986) DAI: the dental aesthetic index. College of Dentistry, University of Iowa, Iowa City.
4. J Londono, Shohreh Ghasmi, Ghida Lawand, Fatemeh Mirzaei, Fatemeh Akbari, Mahmood Dashti. Assessment of the golden proportion in natural facial esthetics: A systematic review . *J Prosthet Dent*.
5. Bobu, L, Murariu, A, Topor, G, Beznea, A, Vasluiianu, R. Comparative Evaluation of Casein Phosphopeptide - Amorphous Calcium Phosphate and Fluoride in Managing Early Caries Lesions. *Revista de Chimie*. 2019; 70(10):3746-3749;
6. Bobu L, Murariu A, Topor G, Beznea A, Vasluiianu R. Comparative evaluation of Casein Phosphopeptide Amorphous Calcium Phosphate and Fluoride in managing early caries lesions. *Revista de Chimie*. 2019; 70 (10):3746-3749;
7. Dimofte M, Gelețu G, Costan V, Benghiac A, Moscalu M, Popescu E. Considerations of platelet rich fibrin use in oral surgery. *Medical Surgical Journal*. 2016; 120 (4): 920-925;
8. Vasluiianu, RI, Ungureanu, D, Jitaru, D, Ioanid, AD, Fornă, NC. Crevicular C-telopeptide and C-propeptide of type I collagen are markers of parodontal disease evolution in diabetic and non-diabetic patients. *Revista romana de medicina de laborator*, 2012, 20(2):173-180;

9. Jacob RF (1998) The traditional therapeutic paradigm: complete denture therapy. *J Prosthet Dent* 79:6–13;
10. Vasluianu, RI, Forna, NC, Baci, ER, Zaltariov, M, Vasiliu, L, Murariu, A. In vitro Evaluation of Enamel Surface Treated with Fluoride After Bleaching and Etching Erosive Processes. *Revista de Chimie*. 2018, 69(7):1714-1717;
11. Murariu A, Hanganu SC. Family influences on adolescent's oral health behavior and sugar consumption. *Revista de cercetare si interventie sociala*. 2013; 41: 60-74;
12. Murariu A, Hanganu C, Bobu L, Vasluianu R, Gelețu G, Baci R, Stafie C, Forna NC. Comparative study of oral health systems in Europe. *Romanian Journal of Oral Rehabilitation*. 2020; 12 (4):11-17;
13. Murariu A, Vasluianu R, Matricala L, Stoica I, Forna NC. *In vitro* evaluation of morphological integrity of dental enamel exposed to carbamide peroxide-based bleaching agent. *Revista de Chimie*, 2016; 67 (10): 2103-2105;
14. Checherita, LE ; Lupu, IC ; Stamatin, O ; Manuc, D, Aesthetic and Functional Oral Rehabilitation with Occlusal Trays, Ultrasonotherapy and Tolperison Hydrochloride Treatment in Patients with Dysfunctional Syndrome of Stomatognathic System and Muscular Affectation, *Revista de Chimie*, 2018, 69(7) Pages: 1752-1755;
15. Checherita, L.E.; Forna, N.C.; Stamatin, O; Cobzaru, R; Leon, MM; Cioloca, D. Correlations between Biochemical Parameters Integrated in Stomatognathic System Dysfunctional Syndrome. *Revista de chimie*. 2013, 64(10): 1172-1176;
16. Hanganu SC, Armencia AO, Murariu AM, Macovei G, Hanganu LC, Grigoras S, Bobu LI. In vitro Interaction Between Two Composite Restorative Materials and Artificial Saliva. *Materiale Plastice*. 2014; 51(4): 388-390;
17. Bulancea, B, Vasluianu, R, Tatarciuc, M, ; Bulancea, A, Checherita, L, Baci, R. Oral rehabilitation methods through the combination of different prosthetic techniques. *Romanian Journal Of Oral Rehabilitation*. 2019, 11(2):266-273.
18. Murariu, A, Hanganu, C; Bobu, L, Vasluianu, R, ; Geletu, G, Baci, R, ; Stafie, CS, Forna, NC. Comparative study of oral health systems in Europe. *Romanian Journal Of Oral Rehabilitation*. 2020, 12(4):11-17.
19. Murariu, A, Hanganu, C, Vasluianu, R. Oral impact on quality of life among young adults in Iasi. *Romanian Journal Of Oral Rehabilitation*. 2012, 4(3): 18-22.
20. Fiske J, Davis D M, Frances C, Gelbier S. The emotional effects of tooth loss in edentulous people. *Br Dent J* . 1998; 184: 90–93.
21. Zarb G. Prosthodontic treatment for edentulous patients. St. Louis, Mo.: Elsevier Mosby, 2013.
22. Pjetursson BE, Tan K, Lang NP, Chan ES. A systematic review of the survival and complication rates of fixed partial dentures (FPDs) after an observation period of at least 5 years. *Clin Oral Implants Res*. 2004;15:654-66.