

The importance of observing the aesthetic requirements in partial edentulous rehabilitation - implications in medical-dental training

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Abstract—Aesthetic treatment is very important in the diagnosis and treatment plan. Dental practitioners should not have just a methodical analysis of the aesthetic attitude, but must be free themselves of the prejudgments. The aim of this study is to assess the recovery aesthetics of various types of prosthetics in the partial edentulous therapy with deep implications in the formative aspects of the professional training of the Dental Faculty students from Iasi, 5th and 6th years of study, while being relevant to the practitioner. The analyzed group was represented by 78 patients that were submitted under Department of Prosthodontics of the Faculty of Dentistry diagnosed with edentation, final therapeutic solutions being anchored in the territory of the fixed prosthesis, removable prosthesis or mixed prosthetic, bringing together the two types of prosthetic. Aesthetic analysis we propose to assess the esthetic results in the analyzed group involves the superposability of the central incisors over facial contours, elements between which there is a close interrelation that results from scanning the face shape and the shape of the dental prosthetic restorations. The aesthetic requirement must be understood and dosed in the context of a complete prosthetic solution with the importance of other factors: mechanical, functional, biological and psychic, all the subordinate concept of a complex oral rehabilitation.

Keywords—Aesthetic treatment, edentulous, education performance, oral rehabilitation, aesthetic area.

I. INTRODUCTION

IT is very important for the dentist and dental technician to be aware of the tooth morphology [1, 2, 3]. The aesthetic study should be started with the study of the gum tissue; it must be a balance between restoration and marginal periodontal: the restoration will not affect the health and gingival contour and the shape of the gum tissue does not affect the aesthetic of the prosthetic work [4, 5, 6]. The

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morphological elements can be harmonized so that we can create an aesthetic smile.

Restoring aesthetics must appear natural, dental dentistry harmony must exist, a dental-facial one, which often does not translate into a perfect symmetry and youth dentistry. It is essential to understand that we should not emphasize certain defects, but we must improve, as much as we can, the initial situation with the patient [7, 8, 9].

Aesthetic treatment is very important in the diagnosis and treatment plan. It has to mentally and dentally view the treatment outcome and the practical ways that can achieve this result. The provisional restorations are helpful and so are the images on the computer. Dental practitioners should not have just a methodical analysis of the aesthetic attitude, but must be free themselves of the prejudgments [10, 11, 12].

Aesthetic dentistry is associated most commonly with dental restorations in the anterior area. Aesthetic dentistry describes the efforts made to restore a tooth or to make a prosthesis, so not to draw attention to these changes [13, 14, 15]. Aesthetic dentistry can also improve appearance by changing the contour of teeth or gingival architecture by offering a brighter and more perceptible aspect [16, 17, 18].

II. AIM

The aim of this study is to assess the recovery aesthetics of various types of prosthetics in the partial edentulous therapy, identifying factors that disrupt the final look, a very important aspect being the ways to remedy the deficits, while settling interrelations of the particularities of the prosthetic field, the type of prosthesis and the degree of recovery aesthetics. The importance of this study is reflected in the formative aspects of the professional training of the Dental Faculty students from Iasi, 5th and 6th years of study, while being relevant to the practitioner.

III. MATERIAL AND METHOD

The analyzed group was represented by 78 patients that were submitted under Department of Education of the Faculty of Dentistry diagnosed with edentation, final therapeutic solutions being anchored in the territory of the fixed prosthesis, removable prosthesis or mixed prosthetic, bringing together the two types of prosthetic.

IV. RESULTS AND DISCUSSIONS

Aesthetics is the term used to describe the gums and teeth, as they are shown during smile, it should be described in the treatment plan drawn or photographed. This practice would allow dentists to avoid unwanted metallic elements included in the treatment plan. According to Preston the aesthetics area is any area the patient imagines it is. Even if the patient does not expose any metal part during smile, he still might get the impression that they are observed. Physicians should inform patients when using the vestibular metal surfaces of the teeth, even if these elements are not visible or are in the unsightly aesthetic zone.

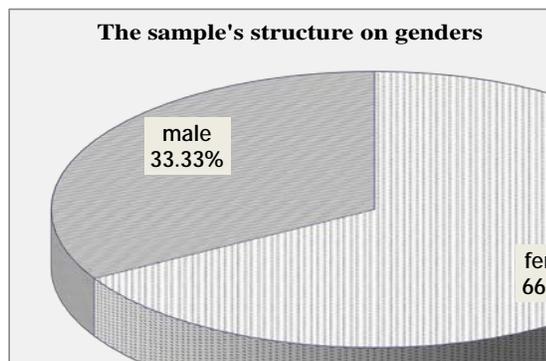


Fig. 1 Aspects regarding the sample's structure on genders

In the study group analyzed, there is a prevalence of females, particularly important in the choice of solution treatment grafted on the aesthetic demands of the females, the final decision being influenced by a factorial accumulation in which social aspects and degree of education have very important roles (fig. 1).

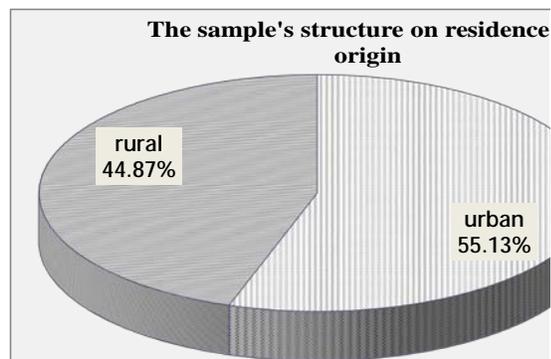


Fig. 2 Aspects regarding the sample's structure on residences of origin

The prevalence of urban population provides a snapshot ridden that has influenced the environment of origin on the final therapeutic decision, according to the aesthetic requirements that govern current prosthetics and to what extent this fact balances towards functionality or aesthetics (fig. 2).

The prevalent type of the prosthesis was represented by classical and flexible acrylic therapeutic solutions, depending on the peculiarity of the prosthetic area, followed by the

prosthetic framework that uses the elements of maintenance, support and stabilization, clasps, at a rate of 15%, the prosthetics framework with attachments being used, and the overdenture type prosthesis are accounted for 5%.

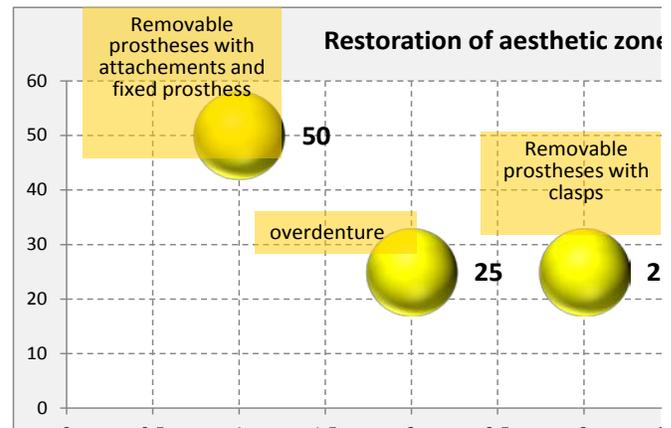


Fig. 3 Restoration of aesthetic zone

Restoration of aesthetic was recovered at a rate of 50% through the clasp dental prosthesis with attachment dentures, partial mobile acrylic flexible restorations in 25% were met in the case of prosthetic framework that utilizes hooks as elements of maintenance, support and stabilization and overdenture prostheses (fig. 3).

Aesthetic analysis we propose to assess the esthetic results in the analyzed group involves the superposability of the central incisors over facial contours, elements between which there is a close interrelation that results from scanning the face shape and the shape of the dental prosthetic restorations. We can equally analyze the traced contours of the type of prosthetic restoration, the superposability smile and the smile arch respectively.

We detailed, grafted on the general casuistry in four clinical cases, representing four distinct therapeutic solutions, a particularly important focus being on assessing the aesthetic restoration in agreement with the particular clinical case.

The first clinical case was diagnosed with reduced maxillary Kennedy class I partial edentation and class I Kennedy partial stretched jaw edentation.

After investigating and analyzing treatment plan in accordance with the principles and criteria that govern the current prosthetic therapy treatment we decided for the following solution: in the jaw, in a prime time the endodontic treatments were done again, after which a fixed prosthesis was made, a metal-ceramic one and in the mandible a prosthetic hybrid was realized, consisting of crowns metal ceramic in front and a removable skeletal prostheses consisting of 2 saddles made from mixed metal-acrylic, 5, and 3 acrylic teeth, metal main connector, EMSS - back area extracoronarian (fig. 4).

We underline the total observation of the aesthetic superposability and incisors shape for an oval face with framing the patient smile parameters that uncover only the

dental area. In terms of aesthetic, in the rehabilitation of the patient it was taken into account the oval frame face, the skin tone, the age and sex of the patient, the height of the lips, the line of smiles which have an average level, the minimum space of speech, the range of the lips in contact, the curvature of the upper lip during smiles (fig. 5).



Fig. 4 The final aspects of therapeutic solutions

A clinical rehabilitated and analyzed case is represented by a 58 years old female patient with a diagnosis integrity arch: partially edentation jaw, class II Kennedy with 2 changes, and partially edentation mandibular, Class II Kennedy with 2 changes. The solution treatment was represented at the jaw.

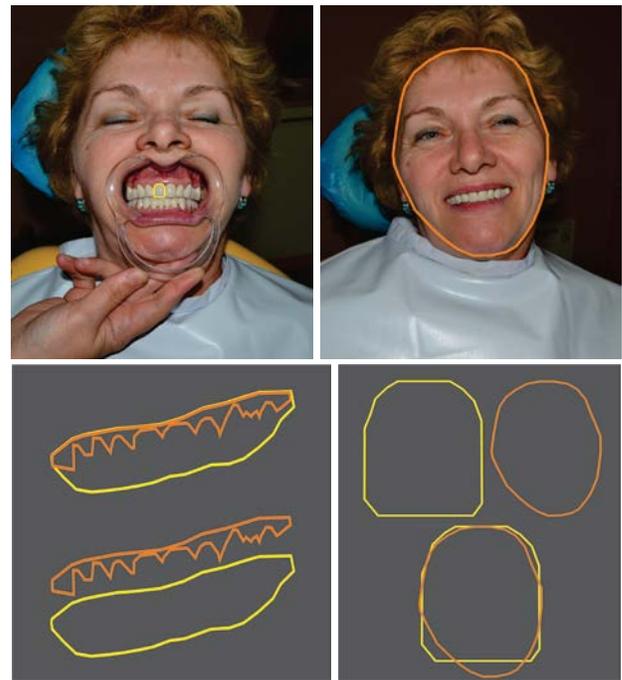


Fig. 5 Aspects of aesthetic analysis - clinical case 1

A version of prosthetic joint venture formed by a fixed prosthesis made from metal-composite group level in front outstanding and a partial removable skeletal denture consisting of a main palate connector plate metal mucosal (built by the French version), 2 saddles mixed metal-acrylic 5 artificial teeth , acrylic, and features for maintenance, support and stabilization: circular Ackers hook on 1.5 with an occlusal spur in pits distal hooks ring on 1. in mesial "T" shape in the 2.3 fossa and 8 to spur occlusal hooks split oral side (fig. 6).



Fig. 6 Initial aspects and final therapeutic solution

Analyze opponent face reveals aesthetic form overlapping teeth over facial contours and therapeutic solution that clasps using dental elements to maintain effective support and stabilization but because they are unsightly, the metal fits very well uncover the smile only on half incisal teeth, clasps 1/3 split being anchored in the incision (fig. 7).



Fig. 7 Aspects of aesthetic analysis - clinical case 2

Another clinical situation relevant to medical practice dentistry is a clinical case representing a loss of substance at muco-bone in the front as a result of trauma. This case was rehabilitated through a prosthetic metal-composite with a false gum, to give an appearance of naturalness according morphological and functional rigors (fig. 8).

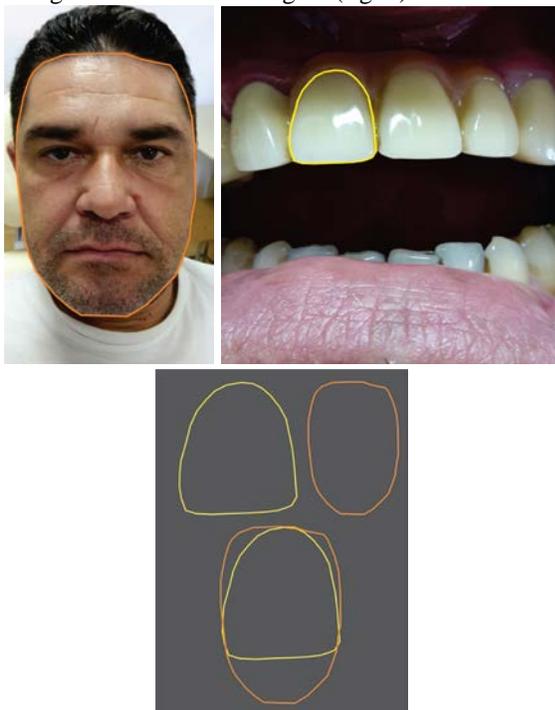


Fig. 8 Aspects of aesthetic analysis - clinical case 3

Gingival smile is representative of a clinical case rehabilitated by metal-ceramic prosthetic, with a good tooth shape superposable on the contour of a square face, according with local situation (fig. 9).

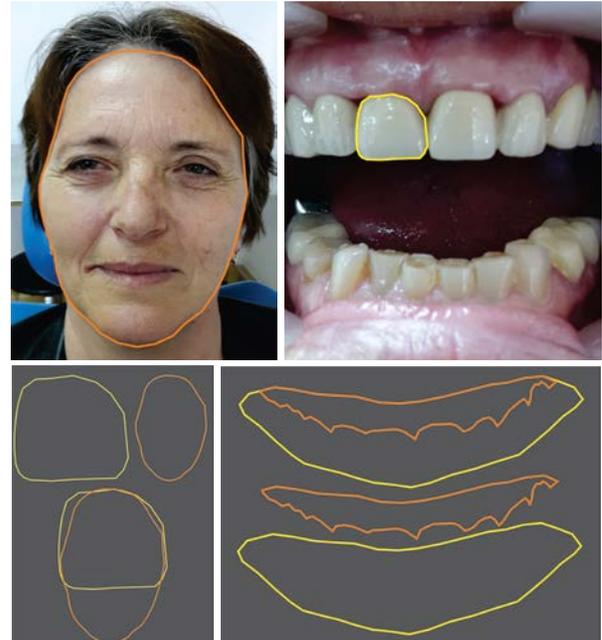


Fig. 9 Aspects of aesthetic analysis - clinical case 4

The aesthetics should be evaluated and introduced as part of the clinical examination. The dentist should take pictures, make a sketch or describe the aesthetics. A thorough evaluation aesthetics will help the physician throughout all manufacturing procedures and it will prevent him from making mistakes. Removable partial denture design, new materials, techniques and adjunctive implants for denture base features that can replace missing teeth support that are used, help the doctor not to invade the aesthetic component of partial removable dentures.

V. CONCLUSIONS

The aesthetic exigence, now under the present life, being a social phenomenon, is for the dentist not only a dental problem but an important one, and also a professional duty, the detailing of this problem should be reflected in the theoretical practice and especially for the students, and later on, in their current dental care activity.

The type of prosthesis is in full agreement with the particularity of the prosthetic area, the presence or absence of the specific training in conjunction with the prosthetic rehabilitation in an aesthetic manner by individual modeling that influences in a decisive way the final results.

The aesthetic requirement must be understood and dosed in the context of a complete prosthetic solution with the importance of other factors: mechanical, functional, biological and psychic, all the subordinate concept of a complex oral rehabilitation.

REFERENCES

- [1] M. Waliszewski, "Restoring dentate appearance: a literature review for modern complete denture esthetics", *J. Prosthet. Dent.*, vol. 93, pp. 386–394, 2005.
- [2] B.B. Chamberlain, M.E. Razzoog, E. Robinson, "Quality of care: compared perceptions of patient and prosthodontist", *J. Prosthet. Dent.*, vol. 52, pp. 744–746, 1984.
- [3] N.Forna, *Proshetic Denture*, Enciclopedica, Bucharest, 2011.
- [4] C. Perea, M.J. Suárez-García, J. Del Río, D. Torres-Lagares, J. Montero, R. Castillo-Oyagüe, "Oral health-related quality of life in complete denture wearers depending on their socio-demographic background, prosthetic-related factors and clinical condition", *Med. Oral Patol. Oral Cir. Bucal*, vol. 18, pp. 371–380, 2013.
- [5] J. Montero, C. Macedo, A. López-Valverde, M. Bravo, "Validation of the oral health impact profile (OHIP-20sp) for Spanish edentulous patients" *Med. Oral Patol. Oral Cir. Bucal Patología Oral y Cirugía Bucal*, vol. 17, pp. 469 – 476, 2012.
- [6] G.D. Slade, A.J. Spencer, "Development and evaluation of the oral health impact profile", *Community Dent. Health*, vol. 11, pp. 3–11, 1994.
- [7] A.H. Wong, C.S. Cheung, C. McGrath, "Developing a short form of Oral Health Impact Profile (OHIP) for dental aesthetics: OHIP-aesthetic", *Community Dent. Oral Epidemiol.*, vol. 35, pp. 64–72, 2007.
- [8] J. Montero-Martín, M. Bravo-Pérez, A. Albaladejo-Martínez, L.A. Hernández-Martín, E.M. Rosel-Gallardo, "Validation the Oral Health Impact Profile (OHIP-14sp) for adults in Spain", *Med. Oral Patol. Oral Cir. Bucal*, vol. 14, pp. 44–50, 2009.
- [9] S. Pan, M. Awad, J.M. Thomason, E. Dufresne, T. Kobayashi, S. Kimoto, et al., "Sex differences in denture satisfaction", *J. Dent.*, vol. 36, pp. 301–308, 2008.
- [10] C. Melh, M. Kern, S. Freitag-Wolf, M. Wolfart, S. Brunzel, S. Wolfart, "Does the oral health impact profile questionnaire measure dental appearance?", *Int. J. Prosthodont.*, vol. 22, pp. 87–93, 2009.
- [11] L.G. Davis, P.D. Ashworth, L.S. Spriggs, "Psychological effects of aesthetic dental treatment", *J. Dent.*, vol. 26, pp. 547–554, 1998.
- [12] R. Ide, T. Hoshuyama, D. Wilson, K. Takahashi, T. Higashi, "Association of psychological well-being with oral conditions in Japanese workers", *J. Occup. Health*, vol. 48, pp. 487–493, 2006.
- [13] S. Wolfart, A.C. Quaas, S. Freitag, P. Kropp, W.D. Gerber, M. Kern, "Subjective and objective perception of upper incisors", *J. Oral Rehabil.*, vol. 33, pp. 489–495, 2006.
- [14] J.N. Walton, M.I. MacEntee, "Choosing or refusing oral implants: a prospective study of edentulous volunteers for a clinical trial", *Int. J. Prosthodont.*, vol. 18, pp. 483–488, 2005.
- [15] C. Nosikov, C. Gudex (Eds.), *EUROHIS: Developing Common Instruments for Health Surveys*, World Health Organization Regional Office for Europe by IOS Press, Amsterdam, 2003.
- [16] J. Montero, M. Bravo, A. López-Valverde, "Development of a specific indicator of the well-being of wearers of removable dentures", *Community Dent. Oral Epidemiol.*, vol. 39, pp. 515–524, 2011.
- [17] R. Desai, J. Durham, R.W. Wassell, P.M. Preshaw, "Does the mode of administration of the Oral Health Impact Profile-4 affect the outcome score?", *J. Dent.*, vol. 42, pp. 84–89, 2014.