Functional and esthetics prosthetic rehabilitation in the elderly patient with metal ceramic crowns

Fabricio Reskalla Amaral¹, Marcelo Ferrarezi de Andrade², José Roberto Cury Saad², José Claudio Martins Segalla², Andrea Abi Rached Dantas², Élida Lúcia Assunção³, Sizenando de Toledo Porto Neto²

¹Department of Odontologia, UNESP, Araraquara, Brazil, ²Department of Restorative Odontology, UNESP, Araraquara, Brazil, ³Department of Dentistry, PUC, Belo Horizonte, Minas Gerais, Brazil

Abstract

With patients increasingly seeking esthetics, advances in the dental area now offer many forms of treatment in order to achieve success. This paper aims to report a clinical case of functional and esthetic rehabilitation involving prostheses over implants and esthetics crowns on the posterior area as well as on the anterior area in an elderly patient. The results achieved were very satisfactory for both the dental surgeon and the patient. The self-esteem of the patient improved after this treatment, thus improving her interpersonal relations.

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Introduction

The quest for health associated with better esthetics has become increasingly more evident. Culturally, the association of these two aspects contributed a lot for a better social life of patients.

Deficiencies related to changes in color, shape, size, position, total or partial loss of the teeth can trigger damage, such as numerous physiological mastication, phonation and cause joint disorders temporomandibular, besides undeniable negative impacts to patients’ quality of life, such as low self-esteem and psychological inability.¹⁻⁷

Among the various dental treatments available in the market to rehabilitate the patient, the metal-ceramic restorations have great clinical success in the long-term, because they have excellent physical and optical characteristics derived from metallic and ceramic infrastructure.

The metallic infrastructure provides high resistance and aesthetic properties, such as fluorescence, opalescence and translucency of ceramic. These esthetic properties are similar to those of tooth enamel and dentin. They are natural and widely recommended for patients who have partial or total destruction in dental crowns or large restorations.⁸⁻¹²

The main positive characteristics of metal-ceramic restorations include Young’s modulus, also known as elastic modulus. It has high support stiffness, high thermal expansion coefficient, hardness supporting masticatory stress and keeping the anatomic configuration of the occlusal and interproximal, marginal integrity, high fracture toughness (about 2.3% after 7½ years), and require less removal of tooth structure to achieve the proper thickness for the prosthesis.¹³⁻¹⁶

Another method of obtaining reliable unit (or total) is oral rehabilitation through the use of dental implants.¹⁷⁻¹⁹ The
rehabilitation treatment relies on implants in the maxilla or jaw and it is a widely accepted method. However, a treatment like this requires some considerations when inserted in aesthetic areas, as it needs a continuing education of professionals and proper planning of each case. It is possible to achieve rehabilitation with esthetic quality and natural gingival contour.[4,6,16,21]

The advantages and disadvantages of each rehabilitation treatment should be observed in details. It must take into account the patient’s expectations, functionality, success, perspective, and financial resources.[10,13,16,22]

Satisfying results of rehabilitation depend on a correct diagnosis and proper planning. When rehabilitating a patient, the physician must have a thorough understanding of the physiological factors that may affect the patient’s occlusion, because the natural and artificial elements must have a functional relationship and harmonious aesthetic.[14,23,24]

Among the desirable characteristics for an occlusal oral rehabilitation, it is possible to mention the incorporation of physiological occlusal vertical dimension, which will facilitate to obtain a mutually protected occlusion, transmitting the resultant of occlusal forces in the direction of the long axis of the posterior teeth. Another important point is the obtainment of bilateral contacts, simultaneous posterior elements as well as lateral and anterior guides to protect the rehabilitation.[9,24-26]

Articulated study models and diagnostic wax can provide important information for the diagnosis and treatment evaluation.[5,11,17,22,27,28]

Case Report

A patient, 62 years old, appeared at the dental office complaining about the absence of the elements 35, 36, 44 and 45, in which the patient was previously operated with the insertion of bone grafts without immediate loading. However, there was a need to rehabilitate the patient prosthetically because some elements had extensive and aesthetically unsatisfactory asymmetry of shape, color and placement, with occlusal and functional losses. Due to the factors outlined above, as well as by the analysis of X-ray panoramic examinations and computed tomography in the treatment plan, it was proposed a rehabilitation process with metal-ceramic crowns in the upper arch and the prosthesis on implants in the lower arch.

The elements in the upper area [Figure 1] show that the occlusal surfaces presented wear, metal and composite restoration infiltrations [Figure 2]. The lower area had no prosthetic implants on the posterior area, which resulted in a small loss of vertical dimension [Figure 3].

The process was conducted in the following steps:

Preparation of the dental structure and production of temporary crowns individual resin on the upper elements from 17 to 27 and 36, 37, 44 and 45 [Figure 4].

Production of single metal-ceramic crowns on the upper elements 17-27 [Figure 5]. At the bottom of four unitary prostheses cemented metal zirconia, two implants were made in the area of elements 36 and 37 and in the area of two elements 44 and 45 [Figure 6].

The patient was satisfied with the results achieved on both function and aesthetics [Figure 7].
Discussion

The search for rendering aesthetics to patients is increasing and so the practitioner must be able to offer this service. In addition to returning the dental element in functional and normal state, the professional must promote excellent aesthetics.\[^{7,8,12,13,16,20,29}\]

Rehabilitation treatments for patients with extensive defective aesthetic restorations, abnormality of shape, texture or color of the metal-ceramic crowns have been used on a large scale by dental professionals, presenting great long-term clinical success and many advantages provided by its excellent physical and optical properties from infrastructure of metal and ceramic.\[^{5-7,14,16,18,19,22,27}\]

For patients who commonly present unitary or total loss of teeth, treatment options include fixed partial dentures (PPF), adhesive resin restorations and individual implant restorations.\[^{4,5,11,21}\]\n
Partially fixed implant-supported prostheses seem to have a good prognosis and are well accepted by patients.\[^{6,9,10,26}\]

Another means of oral rehabilitation is the use of dental implants, where professionals come further expanding the use of this treatment modality. Its result is patient’s satisfaction, which in turn, depends on a careful evaluation, a correct diagnosis, and an excellent and knowledgeable work staff.\[^{1-3,15,23,28}\]

The high demand for aesthetically pleasing restoration resulted in the development and marketing introduction of several dental ceramics. The longevity and success of indirect restorations were directly influenced by patient and operator. The patient determines oral hygiene, diet and functional habits, since the operator is responsible for the preparation, printing and by cementing the piece.\[^{6,14,27}\]\n
Knowledge of the optical properties of ceramic systems available allows you to make appropriate choices when facing various aesthetics challenges.\[^{8,17,19,24,25}\]

This research confirms the findings of similar studies; the porcelain-fused-to-metal and rehabilitation treatments with implant-supported prostheses in regions with a healthy periodontium result in a better long-term prognosis.\[^{5,7,26}\]\n
This type of treatment renders not only aesthetic and functional abilities of the patient, but also ensures a positive psychological effect. Therefore, it directly impacts the quality of patients’ life.\[^{17,18,21,23,28}\]
**Conclusion**

The treatment achieved a satisfactory aesthetic and functional rehabilitation. It has provided an appropriate function for the patient’s quality of life, and the expected aesthetic result was obtained.

**References**