CERAMIC PROSTETHICS RESTAURATIONS - CLINICAL STUDY

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Abstract:
Purpose: This study seeks to create a systematic approach in choosing the right ceramic system according to the clinical situations.
Material and method: The clinical cases have been selected from the Ovidius University of Constanta, Faculty of Dentistry's Prosthetic Clinic: two male patients and three female patients, between ages of 20 and 44, presenting coronary lesions and small partial edentations that required aesthetical and morpho-functional restorations by fixed ceramic prostheses manufactured according to standard protocols.
Results: Following the choosing criteria for the ceramic system mainly suited to the clinical situation, led to obtainment of aesthetic and functional ceramic fixed prosthetics restorations, to the patients delight and satisfaction of the technician-dentist team.
Conclusions: Choosing the proper ceramic systems depends on the minute evaluation of the patient's occlusion, decisions taken favoring aesthetics, resistance, bonding requirements and parafunctional situations, than on a preferred system. Dentists will select ceramic crowns by using hierarchical approach.

Key words: full-ceramic, metal-ceramic, aesthetic, resistance.

INTRODUCTION

The completion of the ceramic restorations may be the most valuable, but also the most difficult part of dental prosthetics. Taking into consideration the large variety of ceramic systems, it is a real challenge for the practitioner choosing a certain system: metal-ceramic or full-ceramic. [1, 2, 3]

This article tries to present a systematic approach regarding the choice for the proper ceramic system according to the clinical situation.

MATERIALS AND METHOD

The clinical cases have been selected from the Ovidius University of Constanta, Faculty of Dentistry's Prosthetic Clinic: two male patients and three female patients, between ages of 20 and 44.

Clinical case 1: Patient A, B, male, age 20, student, comes to the Faculty of Dentistry's Prosthetic Clinic for the remake of the existing unaesthetic left-central incisor coronary-radicular restoration (fig.1). Therapeutically solution: a full-ceramic crown (Wieland pressed ceramics) on 21 because the aesthetical needs govern this case and parafunctional habits are not present (fig.2).

Clinical case 2: Patient S.L., age 40, male, has a partially fixed frontal acrylic crown that was old, worn out and with an altered color (fig.3). taking into consideration the area to be restored, frontal, and the fact that full-ceramic systems offer superior satisfactions than metal-ceramic systems, the choice was to create four full-ceramic crowns – 11, 12, 21, 22 (fig.4).

Clinical case 3: Patient M. P, age 33, female, presents a partial prosthesis treated 2 modifications 3rd Kennedy maxillary edentation' class. The chosen therapeutic procedure is a fixed metal-ceramic partial prosthesis in the front-lateral area – sustaining teeth 21,22,12,13,14,15,17; this is because in this case aesthetic and resistance have the first word; dental contacts are better to be done in metal rather than ceramic to lower the wear of the opposing natural teeth.(fig.5, 6).

Clinical case 4: Patient M. S, age 46, comes for aesthetical prosthetic rehabilitation in the lateral area of type III Kennedy maxillary and mandible edentations. Two partially metal-ceramic fixed prostheses were manufactured for the right maxillary and mandible lateral area with supporting teeth 13,15,43,45. This solution was based because this area requires both resistance and retention, but also aesthetics. Metal-ceramic restorations are the only one that can offer all of these. The ceramic used was VITA (fig.7, 8, 9, 10).

Clinical case 5: Patient G.A, age 44, had a maxillary type III Kennedy edentation and a 2 modifications mandibular type III Kennedy edentation. It was decided to manufacture of 3 VITA metal-ceramic fixed partial prosthesis with supporting teeth 13, 16, 43, 45, 47, 33, 34, 38, because the lateral area is a high stress functional area (fig.11, 12).

RESULTS

Following the choosing criteria for the ceramic system required by the clinical situation led to aesthetical and functional fixed ceramic prosthetic restorations, which brought numerous satisfactions both to the patient and to the technician-practician team.

DISCUSSIONS

Two myths roam regarding ceramic crowns:

I. The most important decision factor is resistance and

II. The most aesthetic are always full-ceramic crowns. [4, 5].

Resistance should not be the decisive factor in choosing a ceramic system [6, 7]. It is true, metal-ceramic crown tend to be more resistant than full-ceramic crowns, but the real problem is how much resistance is it really necessary?

Full-ceramic systems have a higher aesthetic grade than metal-ceramic; nevertheless, having the necessary space from the tooth preparation, skilled technicians can mimic natural teeth using a metal-ceramic system [8, 9].

The questions that we need to ask ourselves before deciding over the correct ceramic crown system are:

i. What are the aesthetic needs, mainly in the gingival third?

ii. What is the quality of the adhesive surface?

iii. How much resistance is it necessary?

iv. What is the patient's oclusal status? Does the patient have parafunctions? If yes, how severe are those?

After answering the questions regarding aesthetics and resistance, the adhesive surface and parafunctions, a hierarchical approach can be used to select the best ceramic restoration.

Selection starts with ceramic veneers and ends with metal-ceramic crowns. (the selection starts with ceramic veneers and ends with ceramo-metalic crowns).

The type for ceramic crown is chosen when the tooth matches all indications for that level, then, by adding supplementary criteria, a subtle choosing can be made.

CONCLUSIONS

- Choosing a ceramic system depends on the minute evaluation of the patient's occlusion [10], and decision is based more on aesthetical, resistance, bonding requirements and parafunctional considerations rather than a preferred system.
- Practitioners will use the hierarchical approach for ceramic crown selection and they will discover that for the same smile a wide range of ceramic materials can be used.
- The critical factor in maintaining in top shape the gum tissue is the correct evaluation of the fraction between crown's edge localization and the overcrest fiber attachment.
- The resistance form is the most important factor to be taken intro consideration in every restoration; the

functional success is based on the cylinder-cone shaped preparation with a minimal cone angle of 10-12 degreed, on the height, diameter and cement type.

Fig.1. Preoperative clinical aspect

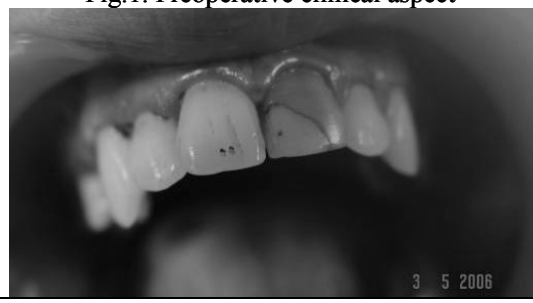

Fig.2. Full-ceramic crown (21)

Fig.3. 12, 11, 21, 22 – Preoperative aspect

Fig.4. Final clinical aspect

Fig.5. Preoperative image

Fig.6. The prosthetic restoration

Fig.7. Preoperative image

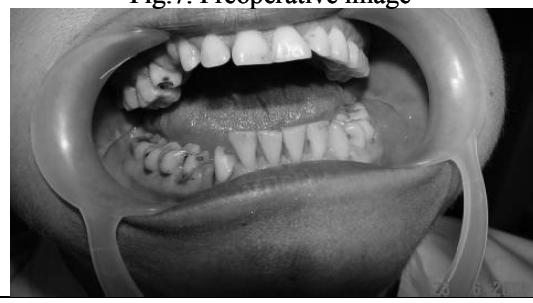

Fig.8. Metallic frame try-out

Fig.9. Try-out on model of metal-ceramic prostheses

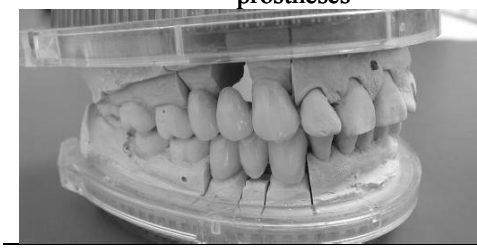

Fig.10. Final clinical result

Fig.11. Initial clinical aspect

Fig.12. Final clinical aspect

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