

Interactions between Restorative Dentistry and Periodontics: Preparation and Cementation of an Onlay in Empress (Part III)

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ABSTRACT

The relentless pursuit by cosmetic dentistry brought the evolution of materials ceramics. The IPS-Empress system was upgrading of indirect restorations based on lithium disilicate. The ceramic restoration posterior allow a new esthetic approach due to its translucency and resistance without any weakening of the remaining dental element, being an option more conservative when compared to conventional prosthetic restorations.

Keywords: Onlay, Posterior teeth, Ceramic, IPS-Empress 2.

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INTRODUCTION

Esthetics is constantly fetched by both patients and dentists nowadays and with the evolution of restorative materials and adhesive dentistry this concept became a reality in daily practice.¹ The use of posterior esthetic restorations demonstrated a significant increase over the years.² When we encounter with cases that require a resolution highly esthetic and of superior quality, the ceramics are the first choice of treatment for their clinical predictability that allows for changes in color, shape and placement of the element dental.¹⁰ The indirect restorations has ample indications to solve adequately the function and beauty of the remaining

structures that vary from the technique of laminate veneer or faceting, fabrication of inlay/onlay, overlay and endocrown the ceramic fragments, characterized by several advantages such as the ability adhesive to the dental substrate, higher resistance to staining and color stability, texture and polishing superior to the resin composite as well as high clinical performance.³

When dealing with posterior esthetic restorations, the adhesive restorations are an alternative more conservative compared the total crown or fixed dental prostheses, in addition to providing greater resistance dental element, restoring esthetics and function.^{4,9} With the advent and development of indirect restorations, ceramics evolved. We find an increase of resistance, where we have as an option from feldspathic porcelain, leucite reinforced by up lithium disilicate and other systems without losing the esthetic. When examining the amount of remaining tooth structure we must evaluate whether there was an extensive coronal destruction, in some cases the alternatives framework laboratory makes a protective role and favorable, and the preferred option.^{5,6}

This case report describes a protocol for preparation and cementing of a prosthetic piece in onlay of IPS-Empress 2, which brings an esthetic alternative to restoring a 1st upper left molar.

CASE REPORT

A female patient, 36-year-old, presented to the clinic Restorative Dentistry at School of Dentistry of Araraquara-UNESP complaining of pain in element 16. After clinical and radiographic examination it was found that the restoration needed to be replaced and endodontic treatment performed. After removal of the restoration was necessary to perform a surgery to increase the clinical crown, it was invasion of the biological space, reported and discussed in Part I of this article. With periodontal surgery done and post spaces were prepared was made a post and core technique, described in Part II and so began the restorative procedures for the preparation and treatment of the dental element with porcelain onlay (IPS-Empress 2) ending this sequence rehabilitative in Part III.

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Preparation

It was made the color choice of the dental element previously to making the preparation, using the Vita-Classical and photographic protocol. Has come the conclusion that the element 16 was based on the color A2 and A3 (Figs 1 and 2). The preparation was done according to the method described by the discipline of Restorative Dentistry of School of Dentistry of Araraquara—UNESP, using burs KG Sorensen 3131, to delimit the depth and taper of the preparation (Fig. 3), MF3099 and 4138F for the preparation has rounded angles, taper and smoothness (Figs 4 and 5).

In the same clinic session was made dental impression with HidroExtreme (Coltène Whaledent) (Fig. 6) by the technique of simultaneous molding and provisional with resin bis-acrylic nanoparticles Protemp 4 (3M ESPE), cemented with temporary cement without eugenol RelyX Temp NE (3M ESPE).

Proves Part Ceramics

In the next session, with the restoration in the hands (Figs 7 and 8), this was evaluated in stone model, to verify that the work was well executed, when the piece does not

have a satisfactory adaptation is likely that your situation is not adequate intraoral. It was made a cleansing preparation with prophylaxis paste to remove any temporary cement and then test your oral cavity. Proximal small interferences may impede the correct nesting of the piece, the marginal adaptation should be assessed before cementation (Fig. 9). The occlusal adjustment of ceramic adhesive was made only after cementation, so there are no fractures or cracks. For adhesive cementation techniques the final insertion of the restorations must be preceded by optimal isolation of the operative field (Fig. 10). So, we must make a last test of restorations under the isolation of the operative field. Should we be worried about using wedges and matrices transparent or Teflon tape to protect adjacent teeth of the adhesion process, facilitating the insertion of the final restoration and preventing the accumulation of excess cement in the interproximal areas.

Cementation

Pretreatment-Ceramic Piece

Hydrofluoric acid 10% (Dentsply conditioning porcelain) for 20 seconds on the inner surface of the part, rinsing, drying and application of silane (Dentsply) (Figs 11 and 12).



Fig. 1: The occlusal area shows A2 color



Fig. 2: The cervical area shows A3 color



Fig. 3: The #3131 bur was used to delimit the depth and taper of the preparation



Fig. 4: The MF #3099 bur was used to prepare the angles of the cavity



Fig. 5: The #4138F bur was used to rounded angles, taper and smoothness



Fig. 6: The impression was made with Addition silicone

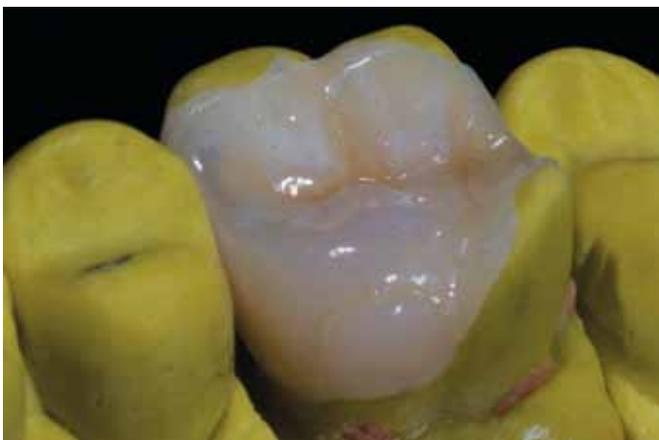


Fig. 7: View of the ceramic adapted to the model

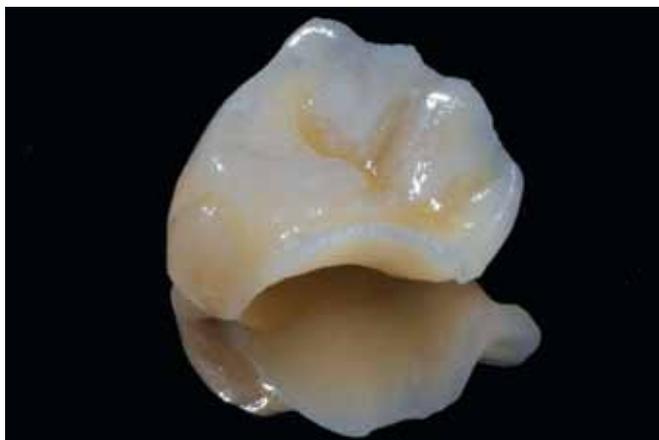


Fig. 8: Note the smooth finish of the ceramic



Fig. 9: Proximal small interferences were removed before cementation



Fig. 10: The isolation of the operative field was made to avoid contamination

We chose adhesive cementation technique U200 self-adhesive resin cement (3M ESPE) (Fig. 13), indicated for luting ceramic onlay, to be practical, less sensitive technique and postoperative sensitivity, dual-cure and adequate adhesion to the substrate. No treatment is required prior to dental element when using self-adhesive resin cement.⁷ The piece was photopolymerized and held in position for 5 minutes after removal of excess coarse.

Final Adjustments

After removal of the isolation of the operative field was evaluated the intensity and pattern of distribution of occlusal contacts, the premature contacts were refined with fine-grained diamond burr under intense cooling⁸ (Figs 14 and 15). Final polishing was done with special brushes associated with abrasive pastes and polishing the edges with strips of sandpaper-act only in resin cement (Figs 16 and 17).



Fig. 11: Hydrofluoric acid 10% was used for 20 seconds

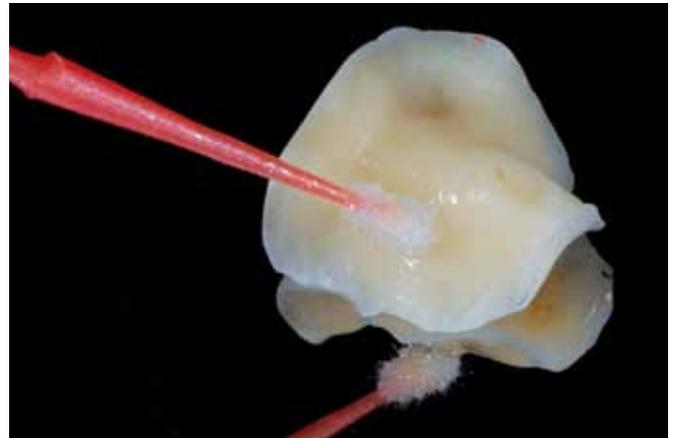


Fig. 12: The silane was used to improve the retention of the ceramic



Fig. 13: The cementation was made with U200 self-adhesive resin cement



Fig. 14: The occlusal contact was checked with paper carbon



Fig. 15: The fine-grained diamond burr was used with intense cooling



Fig. 16: Special brushes associated with abrasive pastes were used to finish

DISCUSSION

To work with cosmetic dentistry involves having extensive knowledge about restorative alternatives on the materials and techniques of manufacture. A posterior element presently requires not only restoration esthetics, as its structural preservation. We walked in a period in which we aim minimal invasion and tissue repair. Adhesive restorations

onlay/inlay, not only preserve the remaining structure as provide better esthetics and longevity to the posterior teeth.^{1,2}

It is important that the dentist has science on what materials that can use, depending on the clinical situation and cost/benefit. The ceramics have been widely used in dentistry since antiquity and today remain as they are materials that closely resemble the characteristics of natural



Fig. 17: The final view of the restoration

teeth. When properly indicated feature superior esthetics and proper adhesion to the substrate dental.^{4,8}

The success of a clinical procedure involves establishing the whole treatment protocol correctly, ensuring that each step should be done properly, respecting your limits. For adhesive bonding is successful must not be contaminated by moisture, so the operative field must be controlled by absolute isolation as well as appropriate choice of cementing agent. The photocured resin cements which have also dual-cure interfere minimally cosmetic ceramic stability when compared to the cement chemically cured, they may change color due to the presence of tertiary amines which oxidize over time. The resin cement chosen in this case report ensures strength and durability of the union, promoting proper sealing between restoration and dental substrate.^{5,7}

CONCLUSION

Adhesive restorations ceramic IPS-Empress 2 as onlay and inlays make an excellent alternative for posterior teeth when

there is little remaining tooth structure where the end is still cervical enamel. The possibility of elimination of the drawbacks related to the composite indicator is the highest success of this restorative procedure.

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