



Preparation of intra radicular retainers using prefabricated glass fiber core: Clinical Case Report

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INTRODUCTION

The constant search for esthetic dentistry has led to an increase in the preparation of metal-free restorations, such as direct or indirect restorations in composite resin and indirect restorations in ceramic.

For teeth with great loss of dental structure and endodontically treated canals, the preparation of intra radicular retainers is necessary for increased retention of restorations.^{1, 2}

Currently, in order to avoid any aesthetic compromise of ceramic or resin restorations, glass fiber posts have been widely used for making these retainers.³ In addition to the esthetics, these posts present as advantages, when compared to metallic retainers,⁴ the strengthening of the remaining dental structure,⁵ easy preparation, lower cost and a modulus of elasticity (21GPa) similar to the dental structure,

reducing the tensions that are sent to the root during the occlusal effort ^{3,6,7} and minimizing the incidence of root fracture. ⁸⁻¹⁰

According to the information above, this article aimed to illustrate the convenience and advantage of using glass fiber cores to prepare an intra radicular retainer.

CLINICAL CASE REPORT

A young patient sought care in the Advanced Fixed Prosthesis course at UNIVERSO-Niterói, requesting the preparation of a restoration for the upper left lateral incisor tooth, which had suffered trauma and subsequent endodontic treatment (Fig. 1-3). After clinical and radiographic examination, the use of a glass fiber post (Exacto Cônico, Angelus, Brazil) was indicated, associated to a glass fiber core (Reforcore, Angelus, Brazil) (Fig.4 and 5). After removal of the temporary restoration, the canal was cleared with Largo Burs (n°3, KG Sorensen, Brazil) (Fig. 6 e 7), and prepared with the prepi burs provided by post system used (Fig.8-11). The clearing depth complied with the retention principles, in other words, the length of the post occupied two thirds of the root supported by bone, at the same time that it had at least the length of the crown that would be prepared, and 5 mm of apical filling remained in the canal. ^{1,5}After obtaining a periapical radiography of the clear canal (Fig. 12 and 13), a test of the main post and core set (Fig. 14) was performed. Then they were cleaned with ethanol and silanized (Silano, Angelus, Brazil) (Fig. 15). The tooth was etched with Phosphoric Acid 37% during 15s (Fig. 16) and rinsed abundantly with water. Absorbent paper cones (Tanari, Brazil) were used for removing excess water (Fig. 17), leaving the dentin slightly moist. Later, through a microbrush, Scotchbond Multi

Purpose (3M ESPE, EUA) adhesive (Fig. 18) was applied and the resin cement (Cement-Post, Angelus, Brazil) (Fig. 19) manipulated according to the corresponding manufacturers' recommendations. Immediately after insertion of the sealant in the root canal and in the core with the assistance of a syringe (Centrix, DFL, Brazil) (Fig. 20 and 21), the main post and core were positioned (Fig. 22 and 23). After setting the resin sealant, composite resin was added on the tooth fiber core interface, and a full crown in pure ceramics was prepared (Fig.24).

Figure 1: Initial Case



Figure 2: Old restoration removed (Vestibular View)



Figure 3: Old Restoration Removed (Incisal View)



Figure 4: Exacto Cônico Post Kit (Angelus, Brazil)



Figure 5: Cores prefabricated in glass fiber (Reforcore, Angelus, Brazil).



Figure 6 and 7: Removal of gutta-percha with largo burs

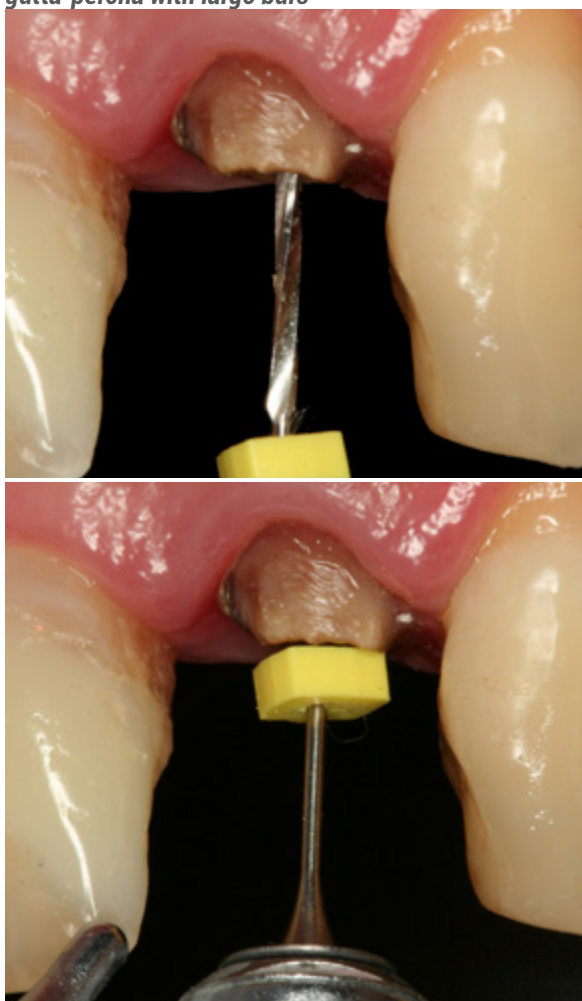


Figure 8-10: Preparation of the canal with the bur of the selected post.

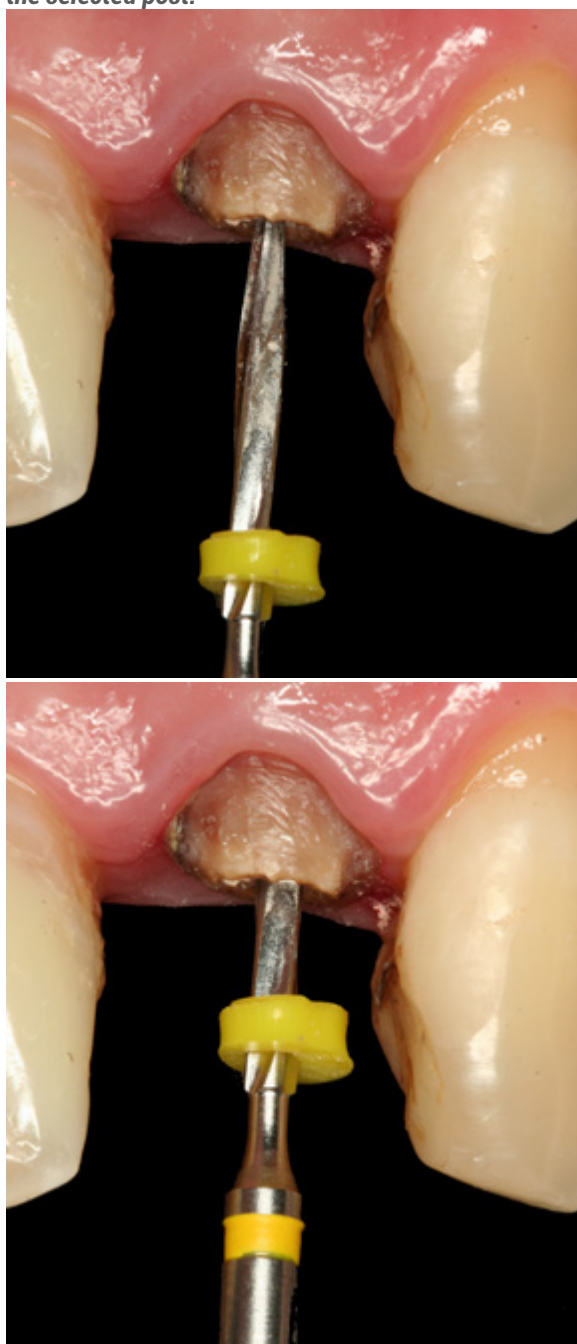




Figure 11: Burs and posts related to the Exacto Cônico Kit (Angelus, Brazil)



Figure 12: Initial Radiography

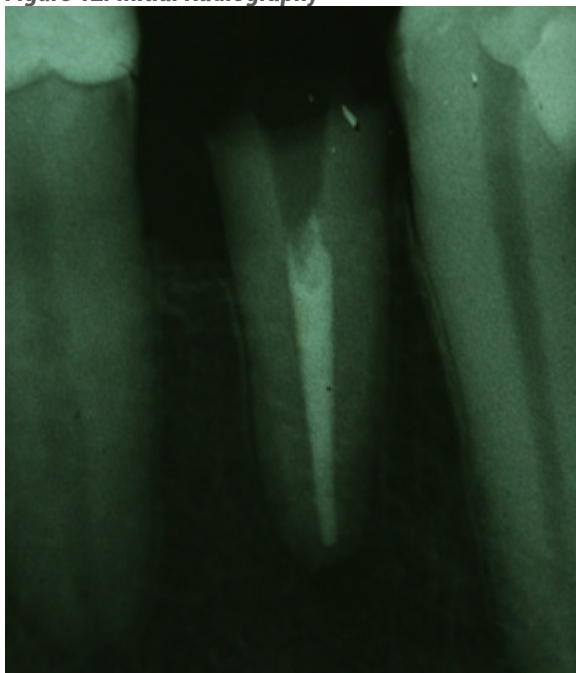


Figure 13: Radiography after removal of gutta-percha and test of post No. 2.

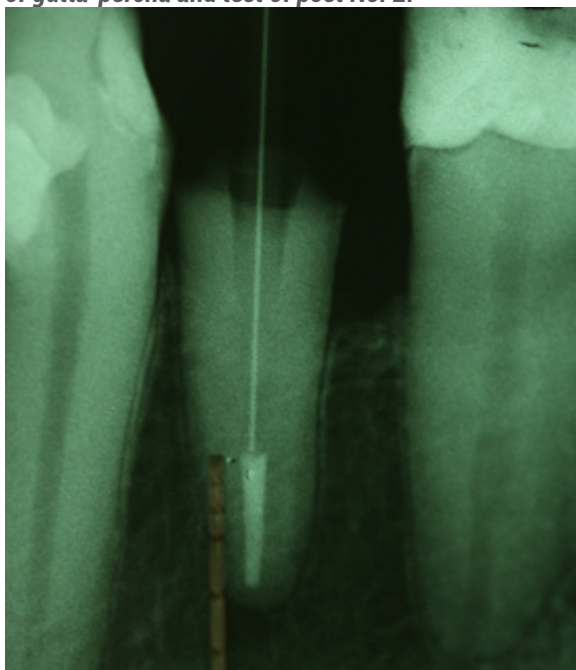


Figure 14: Reforcore glass fiber core test.

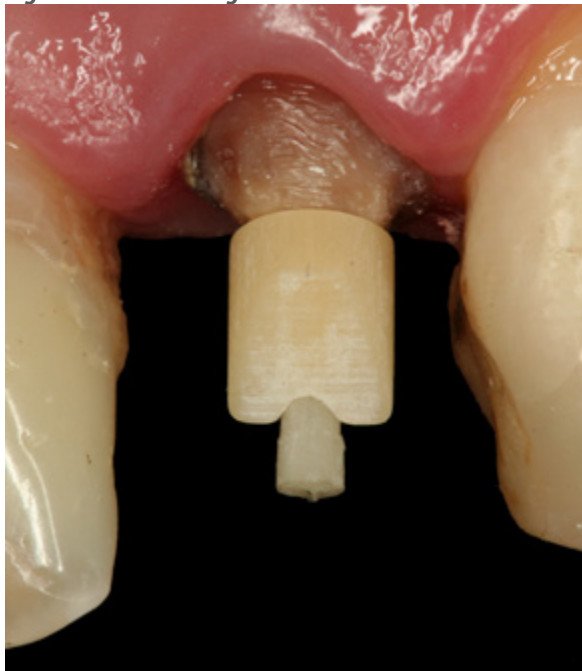


Figure 16: Etching with Phosphoric Acid 37% / 15s (Condac, FGM, Brazil).



Figure 15: Post and core silanization (Silano, Angelus, Brazil).



Figure 17: Rinse with water for 30s, and removal of excess moisture with absorbent paper cones (Tanari, Brazil).

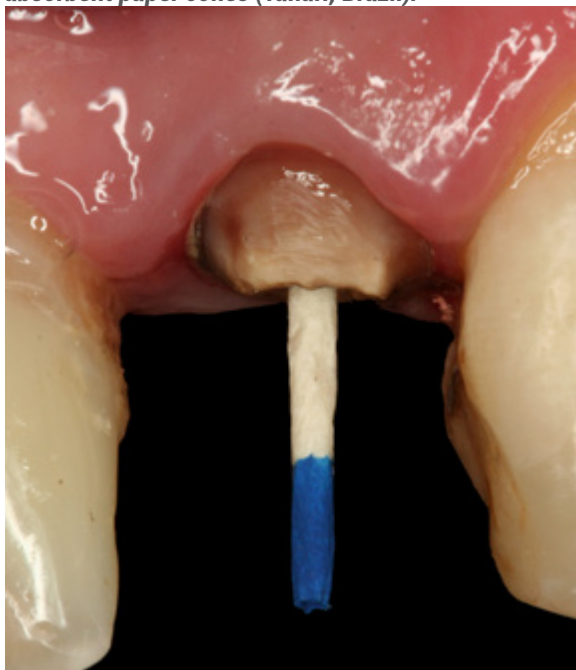


Figure 18: Application of Scotchbond Multi Purpose adhesive system (3M, ESPE, USA).



Figure 19: Chemically activated resin sealant (Cement-post, Angelus, Brazil).



Figure 20 and 21: Insertion of resin sealant with syringe (Centrix, DFL, Brazil).

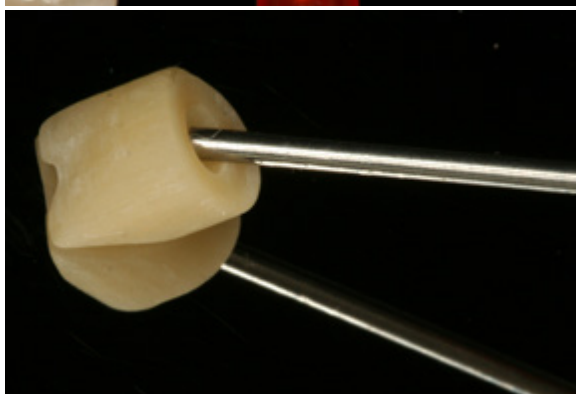
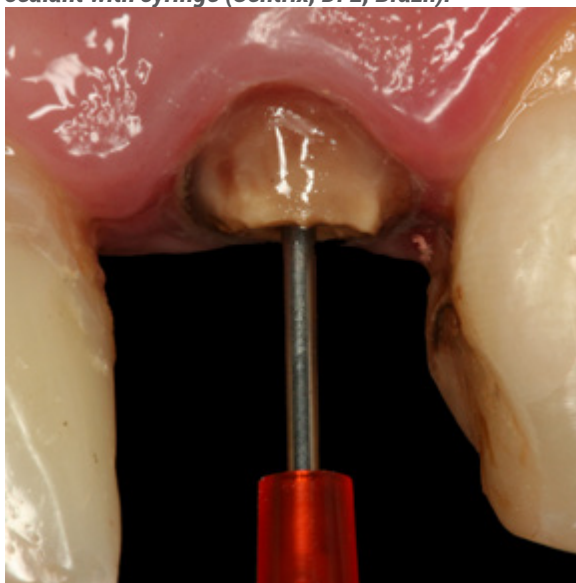
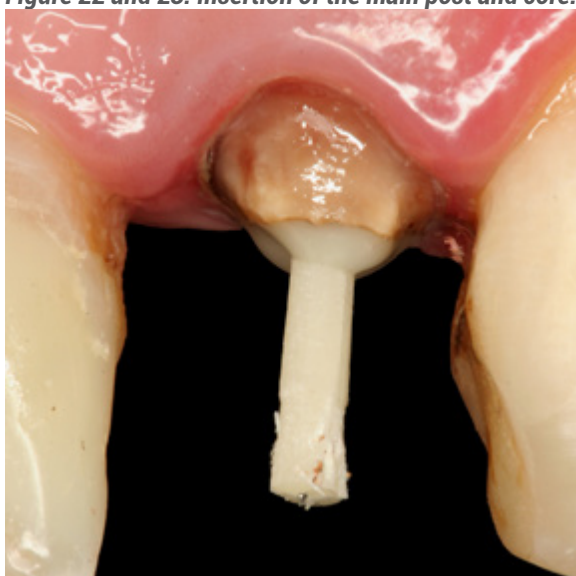


Figure 22 and 23: Insertion of the main post and core.



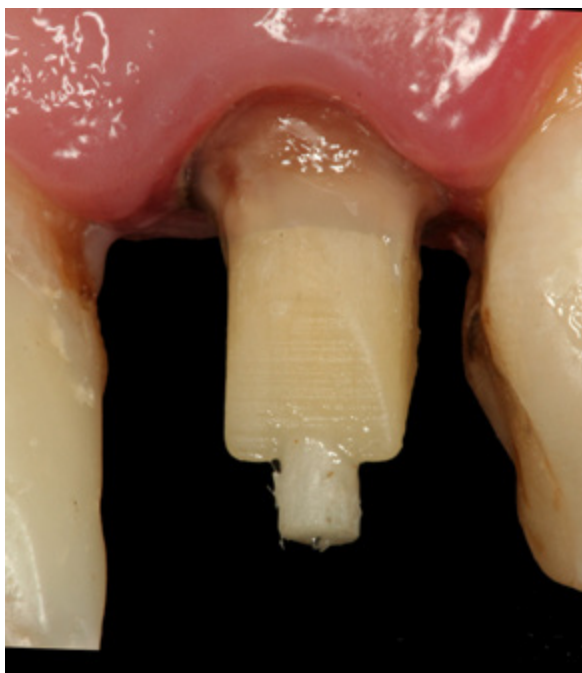


Figure 24: Preparation of dental element for full crown.



Conclusion

According to the facts described in the paper, the recommended system offers an easy preparation and satisfactory clinical results. The use of fiber cores increases the amount of glass fiber in the crown portion. Such features make the set tooth-sealant resin-post more homogeneous.

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