A new intraradicular fiber-resin retainer system. Clinical case report.

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Abstract

The likelihood of anendodontically treated tooth surviving is directly related to the quantity and quality of the remaining dental tissue. The absence of the ferrule guided to use cast metal posts, whichcan lead to catastrophic root fractures due to its high modulus of elasticity and only frictional retention in the root canal.

The clinical case presents a protocol for a new type of intraradicular retainer that allows a more precise adaptation in the cervical area in addition to greater mechanical strength, supporting the indication of fiberglass posts for teeth with little residual tooth structure.

Introduction

Restorative modalities for root filled teeth have been the object of much research, with the aim of identifying methods that make the complex root, post and core unit more resistant to the stress of masticatory loads (1). Intraradicular retainers can be of the direct or indirect type according to the manufacturing technique, and various materials can be used (2).

Knowing that cast metal posts have a high modulus of elasticity and that they can cause catastrophic root fractures, prefabricated fiber posts have come to bring predictability and longevity to teeth rehabilitated with retainers (3).In spite of an adequate elasticity and aesthetics module, the fiberglass posts had a limitation for their indication with respect to the height of the residual dentin structure. The cervical ferrule is of fundamental importance for maintaining the stability and resistance of the promoted rehabilitation (4).

Root canals with large diameters at the cervical third leads to a greater thickness of the cementation line in this region, which is not ideal for the stability of the prefabricated retainers (5).

Fiber posts anatomized with composite resin were introduced to address these deficiencies present in conventional retainers. However, composite resin is not a suitable material to support the compressive load of this rehabilitation (6,7).

Recently, a self-adjusting fiberglass retainer system was introduced, which eliminates the need for relining and fill the cervical area of the preparation with fibers. The system also allows for a more homogeneous wrapping of the fibers to the canal, which provides greater stability for this rehabilitation.

Case report

Patient H.W, male, 42 years old, ASA I, temperature 36.3°C, with no history of previous systemic disease, blood pressure 130/90mmHg, non-smoker, sought carereporting pain andwith a partial restorative crownfracture. Radiographic examination showed a threaded metallic post and the absence of root canal obturation (Fig1).

A treatment involving the removal of the metal post, root canal retreatment and placement of Splendor (SAP, Angelus) was proposed.

The metallic post was removed with ultrasonic vibration (Fig3), and the tissue invaginated was removed byelectrosurgery (BE 3000).Root canal biomechanical preparation was performed. The fiberglass postwas testedaiming to determine the correct height, as well as to measure the depth of the post.Bio-C Sealer (Angelus) with a single cone of gutta-percha M (Odous

de Deus) was used for the root canalobturation, and the gutta-percha was cut using a thermoplastic device (Odous Touch) with FM tip. To prepare the post space, obturation was removed with a minimally invasive cutting action, leaving 6mm obturation apically (Fig4).

Post space was irrigated with distilled water activated byan E18 ultrasonic tip (Helse) to clean the prepared space.

Post and sleeve were cleaned with alcohol and dried.A layer of silane (Silano Angelus) was applied and dried for1 minute. Cementation was performed using Rely X U200, inserted with its auto-mixing tip.

Post and sleeve were initially positioned and a core build-up with composite was concluded (Fig5).

Conclusion

The Splendor post system proved to be simple and efficient, reaching the goal of a minimally invasive preparation in a case where there was substantial loss of residual coronary tissue.

References

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Photo Cases

Figure I. Initial Radiography

Figure II. Palatal view of the initial case

Figure III. Removal of the metal pin

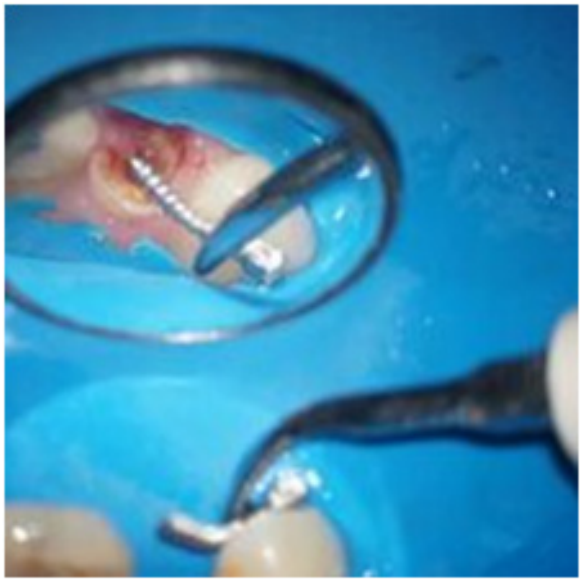

Figure IX.Proof of Splendor post and sleeve after root canal biomechanical preparation

Figure X. Core build-up

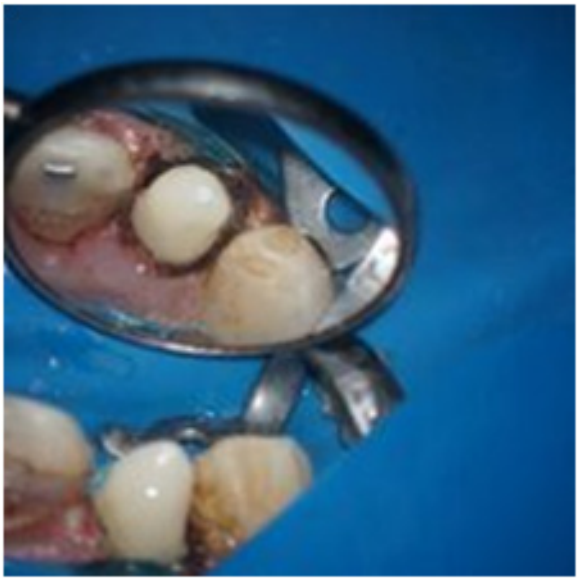

Figure XI. Final x-ray after cementation.