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CASE STUDY OPEN ACCESS

ALTERNATIVE SOLUTIONS IN DENTISTRY: CASE REPORT

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ABSTRACT

Fractures in anterior teeth are clinical situations that frequently appear in dental offices, so the dentist should be more and more skilled and more skilled in the technique. Advances in adhesive dentistry achieve satisfactory returns along with a conservative technique. This work aims, through a clinical report, describing the procedure performed in fractured tooth (left upper central incisor), with endodontic treatment, using composite resin and pin made with orthodontic wire.

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INTRODUCTION

There is a high prevalence of fractures of permanent anterior teeth in young patients (mostly between 6 and 15 years), which often represents an obstacle to restoration of aesthetics and patient function (Bijelia, 1972). Thus, with constant advances in adhesive dentistry, it is possible to adopt a conservative approach today by collating the fragment when it is present, or by reconstructing it with a composite resin (Kupietzky, 2004). Most articles that report coronary fractures do so on upper incisors, probably due to their higher incidence in these teeth, since they are more prominent in the oral cavity (Bijelia, 1972; Busato, 1997 and Carneiro, 2006). In some traumatic circumstances, there are fractures of the lower teeth, which, due to the low dentin volume and large pulp volume, make it difficult to make total crowns (Clavijo, 2008).

In restorative and aesthetic treatments, composite resins have been increasingly used. Since its introduction in dentistry more than 50 years, composite resins see themselves innovating and becoming more technological every day (Fernandes, 2014). An alternative to extensive class IV cavities, which until then were restored with unitary prosthesis, or with a metal plate that served as retention for an aesthetic facet, is the reconstruction with composite resin. On numerous occasions we have only roots or small amounts of crown, which would not support the elaboration of a restoration of such great difficulty (Busato, 1997). However there are alternative solutions in composite resin for patients who need prosthetic treatment, but whose social condition does not allow or for patients who are not yet old enough to perform it (Carneiro, 2006). In this way, a clinical case will be presented where this alternative solution will return the self-esteem of a young person who has the

fractured element 21. In the present study, the authors discussed the importance of a precise diagnosis regarding dental fractures and restoration techniques of function and aesthetics, reporting a case in which the placement of an intracanal pin made with orthodontic wire and reconstruction with Composite resin in a left upper central incisor.

Ethics

The current resolutions of the National Health Council - Ministry of Health (CNS / MS), which regulate human research standards (Resolution CNS 466/12), were followed. Before the beginning of the study, the protocol will be submitted to the Research Ethics Committee of the University Center of the Teaching Foundation of Barretos / SP.

Case Report

Patient M.H.M., 14 years old, melanoderma, arrived at the dental clinic of the University Center of the Educational Foundation of Barretos, reporting a bicycle fall and fracture of element 21. Patient sought the clinic three weeks after the accident, and did not present fragments of the tooth. It was submitted to endodontic treatment (Figure 1).

Figure 2. Reconstruction of the palatine face was carried out with resin

Two months later, the reconstruction of the tooth was planned through pin placement made with orthodontic wire and reconstruction of the dental element with composite resin. Initially, the patient's initial photo and initial X-ray were performed. The patient was isolated so that no contamination occurred in the field of work. The provisional obturator was removed, and the removal of 2/3 of the root canal obturator material (Guta-percha) was performed. Radiography to confirm disruption and subsequent initiation of the reconstruction process (Figure 2).

Figure 2. Reconstruction of the palatine face was carried out with resin

The pin was fabricated with 0.9 mm orthodontic wire at the time of execution and later performed its test in the root canal, confirming its function. Radiography for confirmation of the pin length in the canal was performed. A compensating wear with the cutter 2200 was made, making a bevel in the element. Soon after, the cement of zinc oxide and eugenol was manipulated and applied on the surface of the pin, and taken to the root canal, cementing the same. After a time of 5 minutes, the cementation of the pin was verified, and after confirming it, the reconstruction of the element 21 was started. Firstly, the reconstruction of the palatine face was carried out with resin for enamel A3,5, afterwards, it was deposited Resin for dentine obeying the order of B2 for cervical, A3.5 for medium face and A3 for incisal third. Then, application of resin to A3,5 enamel on the buccal surface of the tooth. It is worth mentioning that the resin was applied in small proportions and photopolymerized, using a brush to smooth and reduce the need for finishing, as it can damage the restoration durability. The polishing of the element was done with FF drills in flame and cone format and the final radiography was performed to prove the procedure. 15 days later, the patient returned and the final polishing section was performed with Enhance, Soft Lex disc and Abrasive Pulp, showing success in the procedure and the final photo (Figure 3).

Figure 3. Success in the procedure and the final photo

DISCUSSION

Intracanal retention in deciduous teeth can be made directly with the use of fiberglass and / or composite resin. There are several types of pre-made orthodontic braided pins that can be cemented without causing dentine problems. The principles of endodontic therapy and intracanal retention up to 1/3 of the root, in addition to periodic monitoring (Carneiro, 2006), should be respected. For several years restoration of devitalized teeth with extensive coronary loss had as only and exclusively alternative the use of molten metal cores to fix a crown (Marturelli, 2007; Mazoccatto, 2006 and Netto, 2011). However, this reconstruction technique showed some problems, such as the difficulty of removing the pin, if a new intervention was necessary in the root canal, the inevitability of a laboratory contribution to its elaboration and the corrosion at the pine / dentinal walls interface. A new disadvantage is the high modulus of elasticity, which allows the concentration of stresses and the transmission of forces directly to the root structure, regressing the restoration prognosis (Mazoccatto, 2006). The development of adhesive dentistry has allowed the use of composite resins in all cases of extensive coronary loss with endodontic involvement, in addition to intra-canal pins, to be considered an excellent therapeutic procedure in the reconstruction of fractured teeth (Marturelli, 2007). The use of

anatomical pins is one of the techniques proposed in the therapy of wide channels, through the molding of the root canal with composite resin, correlated to the prefabricated fiber posts. Another possibility is the creation of anatomical pins indirectly by molding the root canal and the coronary portion of the dental element, achieving a model for making the indirect fiberglass core (Clavijo, 2008). Prosthetic features should not be applied directly to the teeth due to major coronary destruction, making essential the creation of intraradicular reinforcement that can be made with various materials, among them: metal pins, orthodontic wire pins in the form of "alpha" or "gamma" FKG® pins, metal pins with macro retentions, in composite resin, in composite resin with polyethylene tape, fiberglass pins and pins made from the root of natural teeth reached in Human Teeth Banks (Oliveira, 2010). The use of aesthetic pins has enabled the restorations of endodontically treated teeth. Its characteristics such as light transmission, biocompatibility, modulus of elasticity close to the tooth, adhesion to dental structure and restorative material, resistance to corrosion and aesthetics designate that the aesthetic pin is the material of first choice (Hintz, 2015).

Conclusion

It is concluded that it is extremely important to know and apply alternative techniques in order to reach all those who need treatment. In this case, the technique applies to children and youngsters who are not old enough to perform pre-fabricated pin reconstruction or to patients who require techniques with reduced cost and time.

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