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Endodontic tooth treatment with internal root resorption: case report

Tratamento endodôntico em dente com reabsorção radicular interna: relato de caso

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ABSTRACT
INTRODUCTION: Internal tooth resorption is characterized by the destruction of dentin in the root canal wall due to an imbalance of clastic cell activity resulting mainly from trauma. Thus, endodontic treatment is indicated with the aim of removing the etiology of resorption by using intracanal medication to combat possible infection and thus provide tissue repair. OBJECTIVE: The aim of this study is to investigate the treatment of root resorption by conventional endodontic therapy by identifying internal resorption and highlighting the steps of endodontic treatment. CASE REPORT: The methodology adopted was a clinical study in which we selected a female patient who required endodontic treatment of tooth 12 with pulp necrosis and resorption in the middle third of the root. Thus, the endodontic treatment was performed according to the technique, through instrumentation of the root canal followed by irrigation with sodium hypochlorite 6%. After instrumentation, the PUI (Ultrasonic Passive Irrigation) was performed followed by irrigation with 6% sodium hypochlorite and EDTA solution. The root canal was also dried and filled, allowing the respective tooth to be provisionally restored with glass ionomer so that it could later be permanently restored according to the indication of the material. Therefore, internal tooth resorption causes irreversible damage to the individual, such as tooth loss, thus altering the functioning of the stomatognathic system. Thus, endodontic treatment has great advantages in the treatment of teeth with internal tooth resorption since it promotes stagnation of the resorption process and tissue repair. CONCLUSIONS: Therefore, the treatment of internal tooth resorption requires close attention by the dental surgeon due to careful evaluation throughout the entire clinical case.

Keywords: Endodontics, Root canal, Resorption

1 INTRODUCTION

The loss of dental elements can directly influence man's quality of life by interfering in social, nutritional, physiological, and even psychological aspects, thus altering his survival and interpersonal relationships (SANTOS, 2010).

Dental resorption occurs due to an imbalance in the resorption of mineral tissues, resulting mainly from dental trauma, which may appear after a few weeks. Thus, internal tooth resorption is characterized by the progressive destruction of the structure of the root canal wall due to the clastic activities of cells and granulation tissue formation in the bone defect (RODRIGUES, OLIVEIRA 2016).

Preventively, the endodontic treatment aims to maintain the tooth in the oral cavity and the health of the periapical tissues. Thus, it is essential to know the anatomy, physiology and pathologies of the dental pulp to properly manage the procedure (CONCEIÇÃO 2012).

Prior diagnosis, proper endodontic treatment along with planning containing modern techniques and materials and periodic radiographic follow-up is essential to obtain a good prognosis (RODRIGUES, OLIVEIRA 2016).

The process of internal root resorption resulting from dental trauma can be interrupted by conventional endodontic therapy. Thus, the purpose of this research project is to report the etiology of internal tooth resorption, how it is classified and analyzed through specific features of clinical and radiographic examinations.

Thus, this treatment consists of a correct technique that covers instrumentation, irrigation (irrigating solution) and obturation (obturating material/uta-percha). Besides being performed with adequate instruments, the chemical irrigation components such as sodium hypochlorite and the intracanal medication, the MTA.

Thus, this case report shows the effectiveness of endodontic treatment, after ten years of proservation, in a patient who came to the clinic with a tooth that clinically and radiographically showed internal tooth resorption due to pulp necrosis.

2 CLINICAL CASE

On May 18, 2010 the patient C.V.S. 31 years old, female, came to the Clinic, on the recommendation of a colleague, for endodontic treatment of tooth 12 that presented pulp necrosis and internal resorption in the middle third of the root. Figure 1.

Figure 1. Diagnostic radiograph showing internal root resorption.

The patient was anesthetized with a tube of Prilocaine with Felipressin, the tooth was isolated with a rubber dam, and the surgical technique was performed.

Catheterization of the root canal was performed up to the beginning of internal root resorption in the middle third of the root with a Prodesign S #30.10 intracanal instrument irrigated with 6% NaOCl. Working length was measured with a manual instrument type K #30 with when a radiographic view was taken to obtain the odontometry, confirmed with the foraminal locator.

The canal was then shaped with WFile (TDKaFiles) #35.6% and #45.5% reciprocating instruments, irrigating with 5 mL of 6% NaOCla after each instrument.

After Modeling, a PUI (Ultrasonic Passive Irrigation) was performed according to van der Sluis using an E1 ultrasonic insert (Helse) activating for one minute 6% NaOCl, one minute 17% EDTA and one minute 6% NaOCl.***

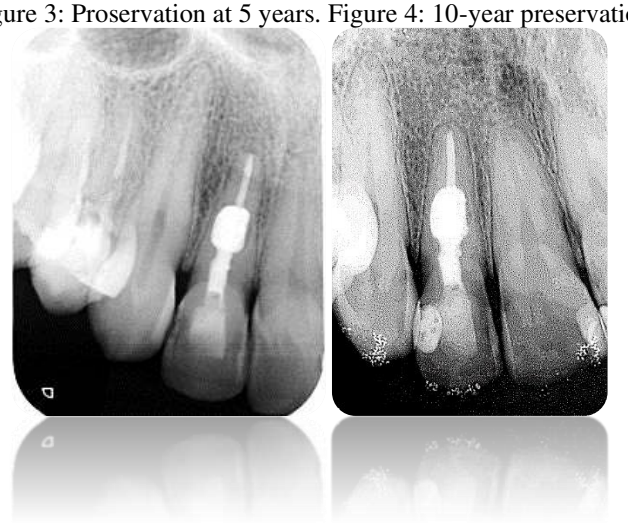
The canal was dried with sterile paper cones and obturation was performed with TDKa Large guttapercha cones and AHPlus paste, cut just after the internal resorption. The resorption and the cervical third of the root canal were filled with Angelus white MTA.

The tooth was provisionally restored with Maxxion R-FGM restorative glass ionomer and the patient returned to the indicating colleague. With the final radiograph. Figure 2.

Figure 2: Final radiograph

Proservation radiographic examinations were performed five and ten years after treatment, confirming the healing of the pathology. Figures 3 and 4.

Figure 3: Proservation at 5 years. Figure 4: 10-year preservation



3 DISCUSSION

Internal root resorption refers to a pathological process in which there is resorption of the inner surface of the pulp cavity. This process is related to the exposure of dentin, which when exposed can trigger resorption due to the presence of sequestered antigens in its cellular matrix. Next to the dental pulp, the loss of continuity of the layer of odontoblasts may be responsible for exposing the dentin and thus causing internal root resorption (PORTO, BARBOSA 2015).

The etiology of internal resorption is still unknown, but it is known that trauma is always the main factor in these cases. Still, other factors may be related such as pulpitis, caries and deep restorations (NEVILLE 2011). In cases where there is chronic pulpitis, there is a discontinuity of

the layer of odontoblasts and dentin exposure, triggering internal root resorption (PORTO, BARBOSA 2015).

According to the classification, they can be subdivided into two types: inflammatory or by replacement. The resorption of the inflammatory type is the one that presents an inflammation after trauma or an aggressive agent. Still, they can be divided into perforating (internal and external) and non-perforating, requiring the realization of pulpectomy, which consists in the removal of the pulp that promotes the paralysis of blood nutrition to the clastic cells (CONSOLARO 2005).

Internal root resorption has been analyzed in patients of various ages, being more common in individuals between forty and fifty years of age. Clinically it is an asymptomatic lesion and most of the time is a consequence of pulpal and periapical alterations and periodontal diseases. Thus, it can be observed when it is in the coronary portion where a hyperplastic tissue with a pinkish stain in the enamel can be noticed. After 10 months of the beginning of the resorption process, the perforation of the crown becomes visible. When this process perforates the root, it becomes difficult to diagnose because it can be confused with external tooth resorption. Thus, it is important to analyze the radiographic exams that will demonstrate the areas of internal resorption as radiolucent, symmetrical, ovoid or rounded regions, well circumscribed inside the root canal (PRATA 2002).

The treatment for internal root resorption consists of conventional endodontic therapy that aims to remove the inflamed tissue, preventing the transport of blood to the resorption areas. Due to the presence of granulation tissue at the site, there may be abundant bleeding during the procedure, impairing visibility in the early stages of mechanical chemical debridement (PATEL 2010).

Moreover, there are technical difficulties in cleaning and obturation of the canals due to the irregularities in the canal walls with internal tooth resorption. In endodontics, the irrigation of root canals with sodium hypochlorite is widely used due to its physical-chemical antimicrobial properties, besides promoting the removal of organic matter present in areas inaccessible to endodontic instruments (FAVARIN 2017).

The filling of the canal should be done with calcium hydroxide paste, because through the alkaline pH and dissociation property, it has antibacterial and remineralization action, thus inducing the healing of the resorption process (CONSOLARO 2011).

The obturation is an essential step in the endodontic treatment, because it aims to block the communication of microorganisms between the oral cavity and the periapical tissues and

eliminate empty spaces inside the root canals, preventing bacterial growth. Thus, after resorption has ceased, the canal and resorption site are obturated with cement and gutta-percha. The filling material must have fluidity in order to provide its penetration throughout the length of the cavity (FERREIRA et al. 2007).

The most commonly used filling cement in internal tooth resorption is MTA (Mineral Trioxide Aggregate) because it is used as a material that induces repair, besides having good sealing properties that provides closure of pulpo-periodontal communication and induces tissue repair (FAVARIN 2017).

However, gutta-percha is the most commonly used material for filling the resorption area requiring prior heating to promote its flow, through thermoplasticization (MELO et al, 2014)

4 EXPECTED RESULTS

Considering that internal root resorption causes irreversible damage to the individual, such as the loss of a tooth, thus altering the functioning of the stomatognathic system, endodontic treatment is considered to have great advantages in the treatment of teeth with internal tooth resorption, since it promotes the stagnation of the resorption process and tissue repair.

Thus, the expected results are that the clinical case analyzed is in line with the theoretical notes explored, since the treatment of internal root resorption requires great attention from the Surgeon Dentist due to careful evaluation throughout the proservation of the clinical case.

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