

# REGRESSION OF INJURY PERIAPICAL EXTENDED THROUGH TREATMENT ENDODONTIC CONVENTIONAL: CASE REPORT

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## ABSTRACT

The endodontics is the dental specialty concerned with the prevention, diagnosis and treatment of illness or injury of dental pulp, responsible for developing the tooth. The root canal treatment is a safe and effective means of preserving teeth that would otherwise be lost. This paper reports a case where the patient has a significant extension of apical periodontitis in the jaw region, reported the procedures and periods required for the conventional endodontic treatment obtain an effective result the injury front. Monthly exchanges of medications to intracanal calcium hydroxide base were performed, and a rigorous clinical and radiographic control, until it actually confirm the results. Faced with this, we suggest that this employee therapeutic protocol was effective to fight infection endodontic present in this case, successfully confirmed through monitoring, clinical, radiographic and biological silence.

**KEYWORDS:** Endodontic treatment, apical periodontitis, calcium hydroxide.

## 1. INTRODUCTION

The endodontics is the dental specialty that seeks the prevention, diagnosis and treatment of diseases or injuries of the dental pulp, responsible for the development of the tooth and also the periodontal apical region. The treatment of pulpal diseases and periapical regions is a safe and effective means of preserving teeth, otherwise, would be lost<sup>1</sup>.

The chemical-mechanical preparation of the root canal system search, and shape this, sanitize it by removing the septic-necrotic content. Treatment should follow scientific and biological principles to follow a secure protocol, minimizing the chances of failures and accidents, because besides the microbial origin, errors may be due to factors like incorrect diagnosis, technical failures and lack of professional skill difficulties inherent in anatomy among others<sup>2</sup>.

However, the development of technical and scientific knowledge, instrumental improvement and equipment and especially the professional development with the advancement of scientific research, have decreased the incidence of endodontic failures. When present, the resources for endodontic treatment are in many cases unsatisfactory in point of cases of tooth loss being reduced<sup>3</sup>.

Thus, apical periodontitis is commonplace in endodontics and its treatment may be just the endodontic treatment with the use of specific intracanal medications for each case, not necessarily surgical, behold, this hypothesis is applied only to persistent injuries, where only the channel decontamination do not is sufficient for its successful treatment.

The intracanal medications also are paramount to the success of treatment, especially in necro-pulpectomy. Calcium hydroxide is highly used in endodontic treatment. By having an alkaline pH, it acts by contact preventing microbial growth and thus survival. In addition to this property, it serves as a physical barrier inside the root canals, making it even more bacterial growth. Another feature is that it has an anti-inflammatory action and creates favorable conditions for the repair of periapical tissues<sup>4</sup>.

This paper presents the treatment of a wide apical periodontitis, the teeth 21 and 22, in patients with 31 (thirty-one) years, where intracanal medication changes were made (calcium hydroxide PA + propylene) in the course of approximately one year, on-the showed significantly positive responses to treatment.

The results underscore the importance of conventional endodontic treatment, and shows as the first line option to an apical periodontitis, with no need to resort to surgical procedures for resolution of the case, unless the retreatment is not successful, and infection, thus persists.

## 2. CASE REPORT

Patient 31 years old, male, attended the Dental Clinic

of UNIPAR Umuarama, Parana Satate, Brazil, reporting a spontaneous sensitivity in the left maxilla. During the interview, he reported that this sensitivity was with him for years and in recent months had been rising. Clinically, there was edema in the periapical region of the elements 21 and 22 which, during palpation, showed a softened tissue with bone involvement. These elements not responded positively to vitality test as scheduled. Radiographically, there has been a large periapical lesion involving the elements, being prompted for a cone beam CT scan to get a better picture of the injury, as shown in Figures 1a, 1b, 1c and 2.

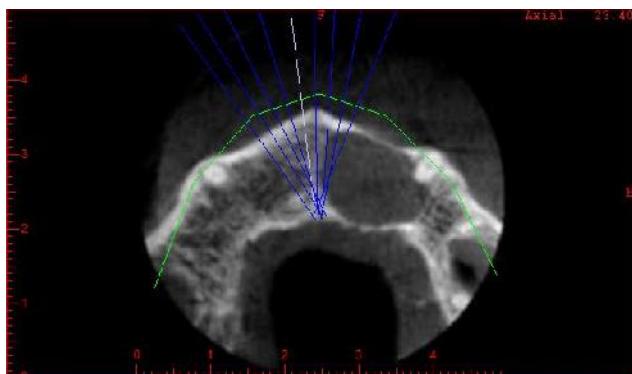


Figure 1a. Axial section.

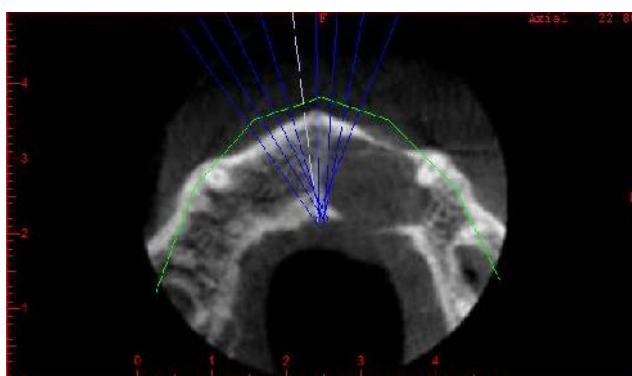


Figure 1b. Axial section.

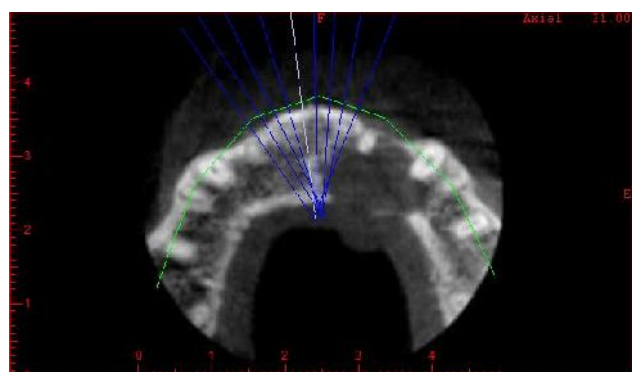


Figure 1c. Axial section.

The Figure 1a shows the extent of injury that at first calcium hydroxide exchanges were planned and later surgery. Due to the size of the lesion, we believed not be pos-

sible to resolve only with conventional treatment.

The Figure 1b shows the disruption of the palatal cortical therefore planned surgical treatment of the lesion to enucleation.

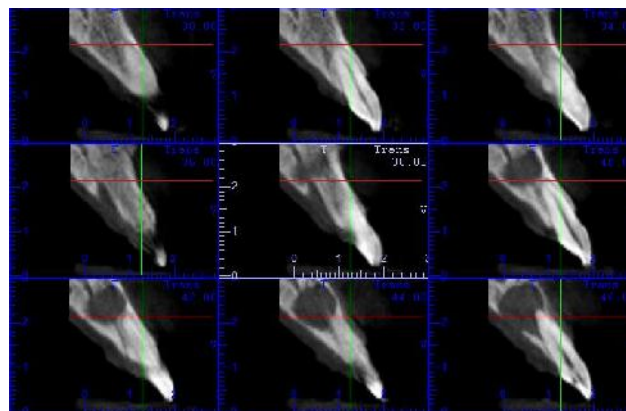


Figure 2. Sagittal section.

In the first session held after the prophylaxis of the elements involved, anesthesia of the area was carried out using two tubes of mepivacaine (DFL. RJ-RJ. Brazil), and absolute isolation from the elements. Was performed, then the removal of the filling material and obtained access to the mouths of the channels possible. The location was made and the exploitation of the conduits using hand files (Malleiffer, Dentsply - Switzerland). Then we performed the complete mechanical preparation, with the use of roundabouts ProDesign S (Easy, BH, Brazil), following the use of protocol recommended by the manufacturer.

A simple sequence of ProDesign S, consisting of 4 files, 2 files Orifice Shaper, 1 Lime apical patency and 1 lime finish was used. This system excludes the use of Gates glidden.

The first step was the pre-enlargement wave, with file # 30/10 (white) in 950 RPC, used in brushing movements, making lateral pressure down to mm, to the point of curvature. Always irrigating with sodium hypochlorite 1%.

We took the # 25 file / 08 (yellow) in 950 RPC, always brush movements within the conduits, 2mm beyond the first file (white). Always irrigating every file exchange.

Second step was to obtain the patent, which is done with file # 25/01 (red) in 350 PRC used in motion "short pecking" slow and short to reach to the foramen patency. Getting the estimated length of the channel, we performed odontology with an apex locator.

The last step is a final shaping with file # 20/06 (Blue) in 350 PRC used in a brushing motion until the set working length.

Still in the first session, immediately after the biomechanical preparation, one dentin qualifying was held, alternating the use of EDTA 17% with sodium hypochlorite 1%. Performed to complete drying of the ducts and inserting an intracanal medication (calcium hydroxide PA + propylene glycol), which was intracanal for a period of 21

days. Successive changes of this medication were held for a period of four months, where it showed a positive response to the drug, and the injury had been regressing as shown in Figure 3.



**Figure 3.** Insertion of medication on the first day (left); Insertion of the medication after 7 months (right).

Figure 3 (right) shows a significant regression of the lesion, being discarded surgical chance to resolve the case, and decided to continue with sudden changes of calcium hydroxide P.A.

After approximately one year, there was a significant regression of the lesion, opting for shutter elements with cement sealer 26, after five months, where completing one year of treatment Figure 4.



**Figure 4.** Cone proof gutta percha (left); Shutter (center); Final X-ray (right).

After 1 year, approximately conducted final X-ray (Figure 7) showing the effectiveness of the treatment, noting bone formation, demonstrating the success of the treatment in the clinical case without surgical intervention.

### 3. DISCUSSION

The apical periodontitis consists of a radiolucent image with sharp edges, found in the apex region. Usually these types of injuries do not show symptoms and are associated with teeth without vitalities in cases of endodontic origin, caused by bacteria that feed on the remains of necrotic dental pulp.

The discovery of these injuries usually happens with tests routines as periapical and panoramic radiographs, which is found radiolucent image in periapex region; then additional tests are required (in order to delimit extent of

the injury) and computed tomography cone beam (CBCT) in order to define the full extent of the injury and so a correct diagnosis with the planning of appropriate treatment.

CBTC shows structural relations in depth, cuts showing images, which allows visualization of the bone and dental tissues with a striking setting, enabling the diagnosis of diseases on the three orientation planes: sagittal, coronal and axial.

In such cases of periapical lesions, the first treatment option is the endodontic treatment of necrotic teeth involved, in order to decontaminate the root canal. For a regression of the lesion in cases of failure, the option is surgical treatment, making an enucleation of the lesion and apicoectomy.

The conventional endodontic treatment has undergone constant changes in recent years, due to the great evolution scientific, technological and biological, leading to increasing levels of success<sup>4</sup>.

The periapical lesions of endodontic origin, develops from the host response against microbial attacks in these regions, in order to eliminate the bacteria, the lesion forms.

After cleaning and mechanical preparation of the root canal, there is a decrease in the inflammatory process and starts a repair process with fibroblast activity begins the formation of a new tissue with the same architecture and function which was previously destroyed.

Calcium hydroxide is highly used in endodontic treatment. Due an alkaline pH, it acts by contact preventing microbial growth and thus survival. In addition to this property, it serves as a physical barrier inside the root canals, making it even more bacterial growth. Another feature is that it has an anti-inflammatory action and creates favorable conditions for the repair of periapical tissues<sup>1</sup>.

The results obtained in the treatment is said truth about the priorities of PA calcium hydroxide; proving to be effective against the extensive injury presented in this case, where sudden changes of that drug were made, and succeeding and bone formation in the damaged area.

### 4. CONCLUSION

The success of predictability in a very extensive endodontic infection becomes complicated by the possible presence of an extra-root biofilm and also related to the response of the organism to aggression. Generally, conventional endodontic therapy is the first choice, complemented surgically when necessary. If all that we have a clinical and radiographic success only with conventional endodontic therapy, showing that this is still the first choice of treatment, with high success rates.

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