

ENDODONTIC TREATMENT OF UPPER RIGHT PREMOLAR WITH THREE ROOTS CARRIED OUT AT THE LEAGUE OF ENDODONTICS CLINIC (LAEND) OF UNINASSAU CARUARU- PE- REPORT OF CASE

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Abstract: Endodontics is a specialty of dentistry that is related to the treatment of physiological, pathological manifestations or damages that affect the dental pulp and periapical tissues (FERREIRA,2022). Endodontics maintains its accuracy through mechanical chemical preparation, which is responsible for cleaning, expanding and disinfecting the SCR and established through irrigating solutions, instrumentation with files, drills and physical actions of irrigation, aspiration and flooding. (Portela et al. 2011 and Aguiar et al. 2021). Anatomical knowledge is essential, since variations in the anatomy and number of canals of tooth groups are very common (PEREIRA, et el. 2012). The present work reports the endodontic treatment of a right upper first premolar with three canals and three distinct roots. The patient was seen at the Uninassau Caruaru-PE Endodontics League clinic (LAEND). At first, the students, due to lack of experience, did not clinically or radiographically identify the anatomical variation. After the discovery of the three roots, access to the canals was redone in order to facilitate visibility and management during treatment. The suggested clinical radiographic diagnosis was Pulp Necrosis with Chronic Periapical Reaction. It was proposed for the treatment plan to carry out the chemical mechanical preparation (PQM) at the beginning with manual stainless-steel instruments with the aid of the contra-angle reducer with reciprocating movements and gates glidden drills and then with rotary instruments and obturated using the single cone technique and thermoplasticized with Mc Spadden instruments. Treatment was proposed in two sessions. Between the two consultations, pure Calen and Ibuprofen 600mg twice a day for 3 days were used in case of pain. In the second session, the patient did not complain of pain and thus, the filling was performed using the thermoplastic technique and the tooth was restored.

Keywords: Endodontics; Premolar; Anatomical Variation.

INTRODUCTION

Endodontics is a specialty of dentistry that is related to the treatment of physiological, pathological manifestations or damages that affect the dental pulp and periapical tissues (FERREIRA,2022). In this sense, endodontic treatment (ET) aims to disinfect the root canal system (SCR), in order to provide recovery of the periapical tissues, and thus, reestablish function to the dental element, as well as maintaining it for a long time. period in the oral cavity (DINELLY ET AL, 2021).

Endodontic treatment is accurate through mechanical chemical preparation, which is responsible for cleaning, expanding and disinfecting the SCR and established through irrigating solutions, instrumentation with files, drills and physical actions of irrigation, aspiration and flooding. (Portela et al. 2011 and Aguiar et al. 2021). After this major step, which can simply be defined as modeling, the root canal system will be ready to receive the filling and proceed for follow-up, to determine the success of the treatment (Portela et al. 2011).

The specialty of endodontics has brought considerable advances in recent years with the introduction of rotary and reciprocating instruments, apex locators and the addition of thermoplastic fillings in clinical protocols (Santos, 2021). With these factors, endodontics became much simpler and promoted satisfactory results in a short time (Santos, 2021). However, even though there are so many facilities in the instruments, what defines the success of the treatment is the skill, knowledge and often the experience of the professional, as it is necessary to be attentive to identify complex root anatomies, curvatures and especially the presence of extra canals that due to lack of attention

from the operator, it can result in the failure of endodontic treatment (Pereira, 2012 and Santos, 2021).

The root anatomy of the upper first premolars presents some changes, varying between one, two or three canals, and may also present with one, two or even three roots (Pécora et al. 1991, Atieh 2008 and Rozylo et al. 2008). As the rate is very low in this last situation, a certain amount of negligence may occur on the part of the professional, which could lead to a primary error, which is not knowing the anatomy of the tooth to be treated (Santos, 2021).

The identification of anatomical variations is of fundamental importance so that the professional can carry out endodontic treatment with the smallest possible margin of error (Pécora et al. 1991, Atieh 2008 and Rozylo et al. 2008). Pécora et al. (1991), researched 240 Premolars and found that 2.5% of the teeth had three canals. Atieh (2008), in another study, found that 1.2% had the same number of channels. It is clear that in these two studies, the rates were very low, however, Rozylo et al. (2008), found rates well above these two studies (9%). In all these cases, it was found that this dental group presents a very high percentage of the presence of two roots, above 80%, one for the buccal and the other for the palate and an average of 15% with one root and one root canal (Pécora et al. 1991, Atieh 2008 and Rozylo et al. 2008).

The objective of this case report is to show the importance of knowledge of professionals and students in relation to the anatomy of the root canal system and its variations in teeth that will be treated endodontically, as well as using appropriate techniques, especially in this case of a first pre- upper right molar with 3 canals and 3 roots. The treatment was carried out by students at the Endodontics League Clinic (LAEND) in: Uninassau da unidade de Caruaru-PE.

REPORT OF CASE

A 25-year-old female patient attended the Endodontics League Clinic at the Centro Universitário Mauricio de Nassau in the Caruaru-PE unit, with pain in the upper right side. During the anamnesis she reported that she felt spontaneous pain, and when she put pressure on the apical region of the tooth she felt discomfort when chewing, especially in the upper right first premolar (14). In the thermal test, she did not indicate any sensitivity, however, when subjected to percussion she showed quite considerable sensitivity in that tooth. The periapical radiographic examination (Kodak) for diagnosis in the orthoradial view revealed a defective restoration and a circumscribed periapical reaction involving the three roots, a fact that, given the data collected together with the clinical examination, suggested a diagnosis of chronic dentoalveolar abscess. sharpened.

After diagnosis, anesthesia was performed with Mepivacaine 2% 1,100,000 (DFL) in the cul-de-sac, parallel to the tooth to be treated, coronal opening, removal of all decayed tissue, absolute isolation with the 206 clamp (Golgran) and arch of Ostby (Angelus) and immediate neutralization of the pulp chamber and operative field with 2.5% Hypochlorite (Asfer).

At first, the students did not realize that the tooth had 3 roots. An odontometry radiograph was taken with two #10 type K files (Mayllefer-Dentsplay) (mesiobuccal and palatal canals). When the professor evaluated the odontometry x-ray, he verified the presence of the third root (distobuccal). The coronary opening was rectified and new odontometry was performed with #10 and #15 files, now in the three canals.

Odontometry was performed with the aid of the Foraminal Apical Locator (E-Pex Pró-MK Life). Once the Actual Working Length

(CRT) was defined, PQM began, first with a Gates Glidden #2 drill (Mayllefer-Dentsplay) only in the initial 3mm, so as not to damage the canal. Next, hand files compatible with the diameter of the canals were introduced using the Crown-Apice technique. With each passage of the instrument, 1mm of the irrigating solution (2.5% Sodium Hypochlorite) was irrigated. Manual files #10 to #20 with low rotation Oscillatory contra-angle (Endo FXR 160 PB 16:1- Dentflex) were used.

This pre-preparation was carried out with the aim of minimizing the risk of fractures of mechanized files. The Glide Path was created with a #15 type K file. The Reciprocating file #20.06 and #25.08 (Univy One) were then used. Once the Apical Stop (BA), #25 was made, copious irrigation was carried out with the irrigating solution, 17% EDTA and the canals were dried with #25 absorbent paper points (Mayllefer-Dentsplay). As it did not finish in the same session, Calcium Hydroxide (Calen SS White) was placed as intracanal medication and Flow Resin (FGM) to seal the cavity, as well as Ibuprofen 600mg, 3 times a day, when there was sensitivity.

In the second session, the flow resin was removed, absolute isolation, Calen removed with copious irrigation and #25 manual file, drying with #25 paper points. For obturation, 3 FM secondary gutta percha cones (Mayllefer-Dentsplay) adapted, one in each canal and conometry to check whether the cones were positioned at the working lengths. Once they are all at working lengths and locked, grease them with cement (AH Plus-Dentsplay) and thermoplasticized, with the Mc Spadden gutta-percha condenser (Mayllefer-Dentsplay). After this, a periapical x-ray was performed to check the quality of the filling and concluding that the procedure was carried out with excellence, the excess filling material was removed from the pulp chamber, cleaned with cotton wool and 700

alcohol (Itajá) and then the filling was redone. tooth crown structure with (Forma Ultradent resin).

After a period of three months, the patient was invited to return to the endodontic clinic to take the first follow-up x-ray of the case. This examination demonstrated significant repair of the periapical lesion that the element demonstrated on the diagnostic x-ray, a situation that can be seen in the images 1, 2 and 3, in addition, sensitivity tests were carried out and the aforementioned dental element did not present any painful symptoms, whether spontaneous or stimulated, concluding that the tissues are immediately showing a good recovery, suggesting strong chances of success at the end of the period of follow-up.



Image 1: diagnostic radiography



Image 2: final x-ray



Image 3: follow-up x-ray after 3 months of completion of the endodontic procedure.

DISCUSSION

The Endodontics League (LAEND) at the Centro Universitário Mauricio de Nassau at the Caruaru-PE unit was created for the development and encouragement among the institution's students with the aim of demystifying the existing myths about this specialty that is so controversial among undergraduates and professionals. dentistry. Students only join the league after having passed the course and approved the selection, carried out through a test with closed questions, CV examination and interview.

In the first clinic of 2023, which took place in the first week of February, this patient appeared with an upper first premolar with 3 roots and consequently, 3 canals. It was a great challenge for the students to first carry out the diagnosis and then the treatment plan, as they had only seen this clinical situation in books and in the internal anatomy class of dental groups.

Knowledge of the internal anatomy of dental elements is of fundamental importance for the success of endodontic treatment (Cecília et al. 2011; PORTELA et al. 2011). The upper first premolars have a relatively high variation in the number of roots and canals. It can have on average one channel (18%), two channels (81%) and three channels (1.2%). (TIAGO et al. 2012); (Cecília et al. 2011; PORTELA et al. 2011). Rozylo et al. (2008), found rates well above these two studies (9%), also concluding that the arrangement of these roots is always two on the buccal and one on the palate.

As the anatomy of the patient's canals was unusual and the canals were positioned very close together, the decision was made to begin the Chemical-Mechanical Preparation with manual instruments coupled to the Dentflex oscillatory contra-angle. It is known that rotary files are excellent for preparing atresiated and/or curved canals (Dos Santos, 2021). However, in these specific situations,

it is necessary to expand, negotiate and glide path with manual files to carry out a safe chemical-mechanical preparation in order to avoid fractures or deviations, thus preventing some type of operative accident (Barbin, 2023).

In this specific case, we opted for the oscillatory technique with an oscillatory counter angle adapted to manual files, which according to Queiroz and Bernardineli (2003), in preparations with curved canals, found that, in addition to being effective, this system promoted minimal apical deviations with four types of hand files. Furthermore, it is excellent in narrow and difficult-to-access channels, as its movements are very similar to those of the K-type file Queiroz and Bernardineli, 2003).

Regarding the obturator technique, lateral condensation was initially proposed, as it is what is taught in college and because it is the most widespread throughout the world. However, it is known that it is not as effective, as it leaves some spaces (Abreu and Resende, 2020). The single cone technique is very efficient, especially in the apical third, however, in the other two thirds it is not as efficient (Abreu and Resende, 2020). The most effective technique is the Tagger Hybrid, as it fills the apical, middle and coronal thirds well

with a lot of gutta percha and less cement. (Abreu and Resende, 2020).

For all these reasons, the technique for filling the root canal system with a modified single cone was proposed, using the FM accessory cone with its tip cut until there was apical locking, associated with Tagger's Hybrid Thermoplasticized technique, which according to Nabeshima and Machado (2002) proved that, as it is thermoplasticized, it is more efficient than the single cone technique, as it promotes effective sealing in the apical, middle and coronal thirds.

FINAL CONSIDERATIONS

Mechanical chemical preparation, acquired through thorough irrigation and instrumentation, is essential for modeling the root canal system. Furthermore, improved technological advancement in endodontics allows endodontic treatment to be carried out quickly and successfully. However, even though there are so many instruments that have improved the execution of the treatment, it is still essential that the professional knows how to identify and overcome the variations and peculiarities of each dental element to allow and achieve success in endodontic treatment.

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