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ENDODONTIC RETREATMENT OF TEETH 11 AND 12 FOR PROSTHETIC PURPOSES

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Rosana Maria Coelho Travassos[1], Samuel Nogueira Lima[2], Wiliam Wale Rodrigues Martins[3], Lucas Godoy Martins[4], Vanessa Lessa Cavalcanti de Araújo[5], William José Lopes de Freitas[6], Josué Alves[7], Mônica Maria de Albuquerque Pontes[8], Alexandre Batista Lopes do Nascimento[9], Verônica Maria de Sá Rodrigues[10]Priscila Prosini[11], Kattyenne Kabbaz Asfora[12] and Vânia Cavalcanti Ribeiro da Silva[13]

ABSTRACT

The objective of this study was to describe a clinical case of endodontic retreatment for prosthetic purposes of teeth 11 and 12. Radiographically, the presence of filling material below the appropriate apical limit was observed. After anesthesia, coronary opening and removal of the gutta percha were performed with the Logic RT 25.08 system. Electronic dentistry. The irrigating substance used is 2% chlorhexidine gel and physoiological serum. The preparation was carried out with Solla Collors #60.03 files and foraminal patency with Solla Collors 16/02 Glidepath file, one millimeter beyond the apical foramen exit. The filling of the root canal system was performed by the Odous de Deus single cone technique &#60, associated with Bio-C Sealer cement. It was concluded that the retreatment performed in a single session determined the success of endodontic retreatment for prosthetic purposes.

Keywords: Endodontics. Root canal retreatment. Instrumentation. Canal filling.

[1] PhD in Dentistry and Endodontics
Faculty of Dentistry of Pernambuco - FOP
University of Pernambuco - UPE - Brazil
[2] Doctor in dental clinics.
Mário Jucá University Center - UMJ
[3] Specialist in Endodontics, UNIC, University of Cuiabá, MT
Cacoal-RO
[4] Dental student
Uninassau University Cacoal -Ro
[5] Highest degree: Doctorate (FORP-USP)
University of Pernambuco
[6] Doctor of Dentistry
Faculty of Dentistry of Pernambuco/UPE
[7] PhD in Oral Rehabilitation - FOB- USP.
Faculty of Dentistry of Pernambuco
[8] PhD in Dentistry and Endodontics
Faculty of Dentistry of Pernambuco
[9] PhD in Dentistry and Endodontics
Faculty of Dentistry of Pernambuco and Federal University of Pernambuco
[10] PhD in Dentistry and Endodontics
Faculty of Dentistry of Pernambuco
[11] PhD in Dentistry
University of Pernambuco
[12] PhD in Dentistry and Endodontics
Faculty of Dentistry of Pernambuco
[13] PhD in Dentistry (Stomatology)
Faculty of Dentistry of Pernambuco

INTRODUCTION

Non-surgical endodontic retreatment is a procedure considered as the best alternative when there is a failure in the previous treatment, it consists of the execution of a new chemical preparation, reinstrumentation and refilling of the conduits in order to exceed the failure of the previous therapy. It is considered a more conservative procedure when compared to surgical endodontic retreatment and tooth extraction. In addition, possible cases of failure in endodontic treatments are the result of microbial or non-microbial factors. However, in order to obtain a good result from the treatment, it is necessary to correctly select the case, perform all operative steps, and even have an efficient coronary shielding. (Souza et al. 2024).

The success of endodontic treatment depends on many challenges. The anatomical complexity of root canals is a limiting condition in instrumentation, requiring the operator to perform different maneuvers to achieve it. Therefore, the development of mechanized systems that use nickel-titanium instruments with rotational and/or reciprocating movements provides greater safety in root canal preparation. It has several advantages, such as increased irrigating solution at the apical level, greater elimination of debris and tissue, reduction of non-instrumented root canal scrapings, and reduction of microorganisms, thus enabling better filling (Travassos et al. 2024-B).

Endodontic failures can be attributed through inadequate cleaning, biomechanical preparation and filling, iatrogenic events, or reinfection of the root canal system, when coronary sealing is lost after completion of endodontic treatment. As soon as it is possible to improve the quality of the chemical-mechanical preparation and filling of the anterior obturator material, the non-surgical approach should be considered as the main choice, as it is considered a more conservative approach, aiming to reestablish the repair of the periapical tissues. (Oliveira et al. 2105). One of the critical aspects of endodontic retreatment that can directly influence the success of the procedure is the amount of gutta-percha and endodontic cement present in the root canals. Removing a substantial amount of this material is essential to facilitate subsequent thorough cleaning, precise reshaping, and proper refilling of the canal. In a dynamic field like endodontics, where research and innovations continue to shape clinical practices, the dedication to improving approaches. Retreatment is crucial to achieving the best outcomes for patients. (Travassos et al. 2025).

Retreatment is always a greater desire for the operator, previous quality imaging exams are essential for a smoother and more predictable intervention, they are essential to planning, they reduce the chance of surprises during the procedure, such as anatomical

variations, atresias and accentuated curvatures, and the use of e{cient and quality materials reduce work time and provide greater comfort to the patient, providing a favorable prognosis. (Mergoni, et al. 2022).

CASE REPORT

Patient R.S.Q., 52 years old, female, Caucasian and in good general health, was referred to the office of an endodontics specialist. Intraoral examination did not observe any type of edema, fistula, or pathological changes in mucosa, mobility, or periodontal pocket. The response to horizontal and vertical percussion examination was asymptomatic. Radiographically, the presence of filling material below the appropriate apical limit was observed in teeth 11 and 12. (Figure 1). The need for endodontic retreatment was clarified to the patient, who agreed to the treatment.

Figure 1 - Presence of filling material below the appropriate apical limit in teeth 11 and 12.

Root canal retreatment was proposed for the patient, and informed consent was obtained before the start of treatment. After anesthesia, coronary opening was performed and an appropriate form of convenience was performed. Gutta percha was removed with the Prodesign Logic RT #25.08 system. Foraminal electronic odontometry was performed with the Root Zx Mini Apex Locator (J. Morita Corp., USA). The irrigating substance used was 2% chlorhexidine gel.

The root canal was reprepared with Lima Solla Collors rotary #60.03 and the foraminal patency was performed with the Glidepath Solla Collors 16/02 file one millimeter beyond the apical foramen.

The filling of the root canal system was performed using the single-cone technique associated with Bio-C Sealer cement (Angelus). Figure 2.

The restoration was performed with Filtek Z250 XT micro hybrid composite resin (3M, Two Harbors, Minnesota, USA). The restoration performed with Flow resin is forwarded to the indicator to perform dental rehabilitation.

Figure 2 - Filling of the root canal system by the single-cone technique associated with Bio-C Sealer cement.

DISCUSSION

In recent years, Endodontics has experienced many transformations provided by technological advances, so endodontic treatments have increasingly enabled ease, speed and comfort to clinical procedures, in addition to preserving dental elements, thus avoiding tooth loss. This evolution was significant especially in the instrumentation of root canals, performed by means of instruments such as endodontic files, which are essential for the preparation, cleaning, disinfection and modeling of root canals. The studies and constant efforts allowed for better configuration of the files, as well as more flexibility, speed, safety and optimization of clinical time. Among these advances, the mechanization in the preparation of the canals stands out with the introduction of rotational movements in endodontic files, aiming to overcome the difficulties encountered by manual instrumentation, such as delays in procedures, professional stress and fractures of the canals. (Gadelha et al. 2024).

The choice of the best system to perform endodontic treatment depends on the skill and knowledge of the endodontist, as well as the case to be treated. Manual exploration

and glide path creation have not yet been replaced by mechanized systems. In addition, studies are still needed to identify the indications and limitations of each instrument to achieve success in endodontic therapy. Another important factor to highlight in the use of technology in endodontic treatments is that these techniques play an important role in preserving the ergonomics of the professional, anatomically preserving the fingers, hands and arms of the dental surgeon, being able to perform the activities with less damage to physical health. (Santos et al. 2023).

In the context of endodontic retreatment, one of the critical aspects that can directly influence the success of the procedure is the amount of gutta percha and endodontic cement present in the root canals. Removing a substantial amount of this material is essential to facilitate subsequent thorough cleaning, precise reshaping, and proper filling of the canal. In a dynamic field like endodontics, where research and innovations continue to shape clinical practices, dedication to improving retreatment approaches is crucial to achieving the best outcomes for patients. (Travassos et al. 2025). Clinically, reinstrumentation is considered complete when there is no further evidence of gutta-percha or sealer in the endodontic instrument, the excised dentin shavings are light in color, and the root canal, through tactile sensitivity, has smooth walls and, imaginarily, an adequate shape that allows its subsequent filling effectively. In search of these fundamentals, several maneuvers have been suggested: manual and special; with instruments of variable conicity. (Travassos et al. 2024-B).

Proper filling of the root canal has a profound impact on the effectiveness of the root canal, as well as a better This filling must be carried out precisely, in order to hermetically seal the root canal, preventing the entry of microorganisms. However, its importance goes beyond that. An adequate filling is also able to promote an environment conducive to tissue repair in the periapical region, allowing tissues to restore themselves naturally and preventing the recurrence of infections (Travassos et al., 2022). In the present report, the use of the foraminal locator was very important, as it determines the working length (TC) with greater precision when compared to radiographic interpretation. The correct determination of TC is a key factor for successful endodontic treatment, since foraminal patency is safely performed, especially in canals with periapical lesions.

Bioceramic cements have been widely used due to their high success rate, as they have satisfactory sealing capacity, with the possibility of filling in root canals in the presence of moisture, since these materials are hydrophilic and have dimensional stability. They have biocompatibility, with the ability to integrate with bone and promote biomineralization, they are bioactive, as they induce the healing of periapical tissues with stimulation of tissue

regeneration, and they also have antibacterial activity, in which there is an increase in the pH of the environment, making it alkaline, inhibiting the action of microorganisms remaining inside the root canal after instrumentation. (Travassos et al. 2023) Therefore, in this clinical case, the Bio-C Sealer comment was chosen. For these reasons, bioceramic cement was chosen in this case.

CONCLUSION

It was concluded that the retreatment performed in a single session determined the success of endodontic retreatment for prosthetic purposes.

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