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**TRATAMENTO NÃO CIRÚRGICO DE GRANDES LESÕES /
CISTOS PERIAPICAIS: RELATO DE DOIS CASOS BEM-
SUCEDIDOS**

**NONSURGICAL MANAGEMENT OF LARGE PERIAPICAL
LESIONS/CYSTS: REPORT OF TWO SUCCESSFUL CASES**

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RESUMO

Objetivos: Os cistos radiculares, também conhecidos como cistos periapicais, são as lesões císticas mais frequentes relacionadas aos dentes. O diagnóstico histológico é para garantir o tratamento correto em alguns casos, mas não em todos os casos. **Métodos:** Este artigo apresenta relatos de casos de tratamento endodôntico não cirúrgico de dois casos de dentes associados a grandes lesões sugestivas de cistos periapicais e discute o resultado do presente tratamento. Em ambos os casos, a grande lesão / cisto envolvia os dentes anteriores superiores direitos e apresentava edema. **Resultados:** O caso 1 relatava história de trauma e o caso 2 era dente fraturado. Os medicamentos intracanal usados nos casos 1 e 2 foram pasta de hidróxido de cálcio com propilenoglicol por 15 dias e pasta de hidróxido de cálcio, iodofórmio e propilenoglicol por 15 dias, respectivamente. As radiografias de acompanhamento revelaram a cicatrização das lesões / cistos. **Conclusões:** O manejo não cirúrgico dos dentes associado a grandes lesões ou cistos pode resultar na cicatrização total sem a necessidade de intervenção cirúrgica.

Palavras-chave: Periodontite. Diagnóstico endodôntico. Manejo não cirúrgico. Cisto periapical. Doenças periapicais.

ABSTRACT

Objectives: Radicular cysts, also known as Periapical cysts, are the most frequent cystic lesion related to teeth. The histological diagnosis is to ensure the right treatment in some cases, but not all cases. **Methods:** This article presents case reports of nonsurgical endodontic treatment of two cases of teeth associated with large lesions suggestive of periapical cysts and discuss the outcome of the present treatment. In both cases, the large lesion/cyst involved the anterior upper right teeth and presented with edema. **Results:** Case 1 and reported a history of trauma and the case 2 were a fractured tooth. The intra-canal medications used in cases 1 and 2 were calcium hydroxide paste with propylene glycol for 15 days and calcium hydroxide paste, iodoform, and propylene glycol for 15 days, respectively. The follow-up radiographs revealed the healing of the lesions/cysts.

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Conclusion: The nonsurgical management of teeth associated with large lesions or cysts can result in total healing without the need for surgical intervention.

Keywords: Periodontitis. Endodontic diagnosis. Nonsurgical management. Periapical cyst. Periapical diseases.

INTRODUCTION

Periapical lesion or apical periodontitis consists of an immunoinflammatory response located between the root canal and the periodontal ligament, promoting bone and/or tooth resorption (NAIR, 2006) infected Endodontic treatment becomes challenging in teeth associated with large periapical lesions or cystic lesions because of the thinning of the adjacent cortical bone (SHARMA et al., 2015). Intra-canal medications based on calcium hydroxide paste have been suggested in cases of large periapical lesions and cysts (SOOD et al., 2015; SHARMA et al., 2015). Elimination of the infectious foci through nonsurgical endodontic therapy tends to promote healing of the lesion, despite lesion size (AL KHASAWNAH et al., 2018; MOHAMMADI and DUMMER, 2011). This study presents and discuss nonsurgical treatment of large periapical cysts in 2 clinical cases.

RESULTS - CASE 1

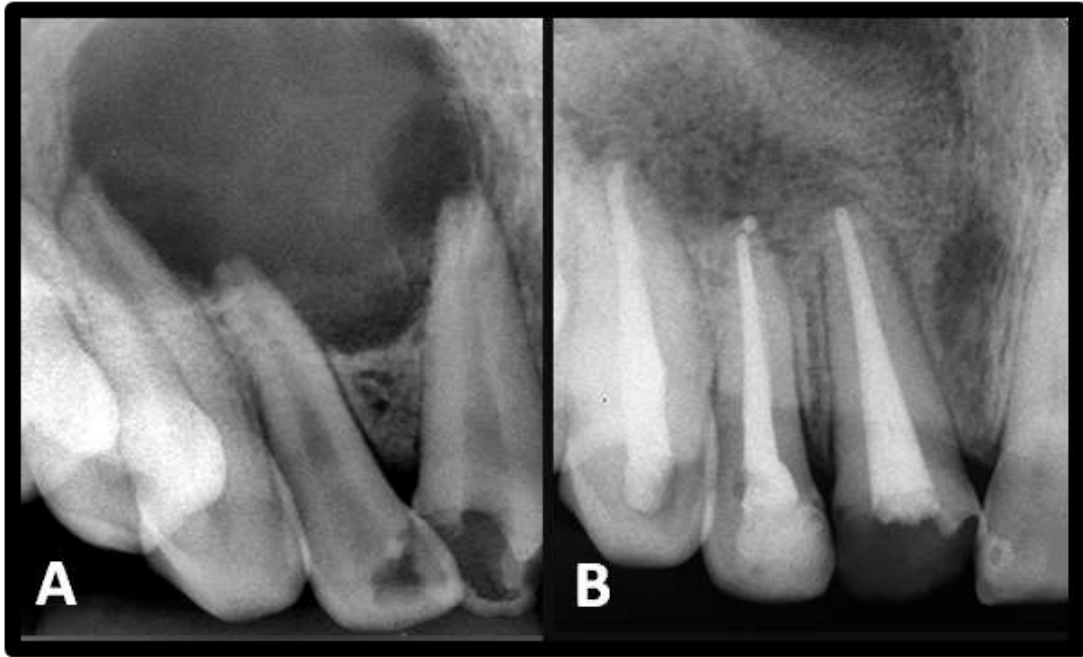
A 29-year-old man presented at the Dental Clinic of a Public School of Dentistry with pain and labial swelling associated with maxillary anterior teeth. He had a contributory medical history of trauma suffered 7 years ago during a sports practice, which led to a partial crown fracture of the right central incisor. The extra-oral examination revealed a slight edema of the upper lip and visibly hardened intra-oral edema in the anterior palatal region, extending from the 11 to 13. In the clinical examination, teeth 11 and 12 were found to be mispositioned. Conventional periapical radiography showed an extensive, delimited radiolucent area, involving teeth 11, 12, and 13, with alterations in the root positioning of teeth 11 and 12.

Apical periodontitis, suggestive of a periapical cyst, was diagnosed based on the clinical and radiographic findings (Fig 1A). Accordingly, conventional nonsurgical endodontic treatment was planned, which was explained to the patient, and informed

consent was obtained. The 3 teeth were isolated using a rubber dam. Access opening and removal of necrotic tissue was performed with K-file size #10, and the canal was abundantly irrigated with 2.5% sodium hypochlorite. The K-file was introduced progressively until the working length (CT) was determined at 0.5 mm below the apex. Finally, the tooth canals were dried and filled with calcium hydroxide and propylene glycol paste, with the aid of a drill. The access cavities were closed with temporary restorative material. Ibuprofen was prescribed for pain, and the patient was asked to return 15 days later. In the second session, the teeth were irrigated, and then dried with an absorbent paper tip. New intra-canal medication with CaOH paste and propylene glycol was administered, and the next session was scheduled 15 days later.

In the third session, patient reported no painful symptoms. The instrument ProTaper F5 was inserted in the working length of the teeth. Canals were dried with a paper tip, irrigated with 15% ethylenediaminetetraacetic acid (EDTA), followed by irrigation with saline solution, and dried with absorbent paper tips. Obturation was performed with gutta-percha cones and AH Plus endodontic cement. The endodontic cavities were restored with composite resin. At 10 months after the conclusion of the treatment (Fig 1B), radiographic examination revealed healing of the lesion area, and repositioning of the central and lateral incisor teeth.

Fig 1 A) Initial radiograph showing the circumscribed lesion and divergence of adjacent roots of teeth 11 and 12; B) Follow-up radiography performed 10 months after treatment completion. Healing of the lesion and repositioning of the roots are apparent.



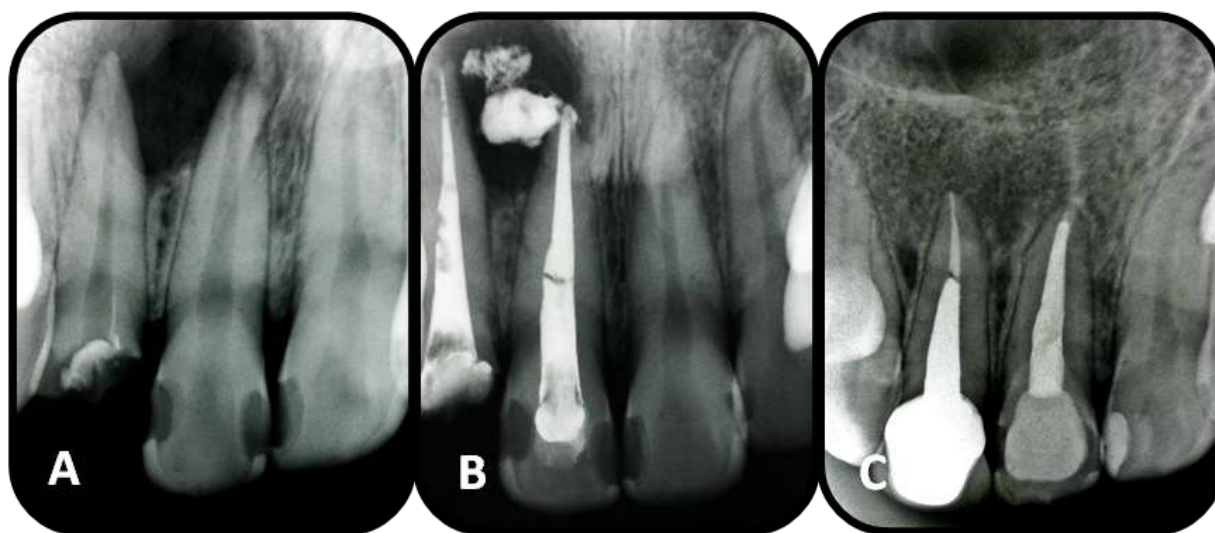
RESULTS - CASE 2

A 20-year-old woman was referred to the same Public School of Dentistry for evaluation of the right upper lateral incisor. The patient's medical history was contributory. The intraoral examination showed fracture of the crown of tooth 12 with exposed pulp chamber and a huge edema that covered the entire palatal arborescence. There was no spontaneous drainage. Patient reported no spontaneous pain or sensitivity. Conventional radiography showed an extensive periapical lesion between teeth 11 and 12 at a slight distance from the roots. The periodontium of the involved teeth was normal. Apical periodontitis suggestive of periapical cyst was diagnosed with radiography (Fig 2A).

After local anesthesia, teeth 11 and 12 were isolated with a rubber dam. Access opening and removal of necrotic tissue was performed with K-file size #10, and the canal was irrigated with 2.5% NaOCl. The working length was determined at 0.5 mm below the apex by conventional radiography. The canals were dried with absorbent paper tips and filled with calcium hydroxide, iodoform, and propylene glycol paste (Fig 2B). A provisional crown of acrylic resin was prepared for the lateral incisor. After 15 days, the edema had reduced significantly, and the patient experienced no pain. The shaping of the root canal was done with the Race system up to file size #45.02 and #60.02 for the central incisor. The canals were irrigated with 2.5% sodium hypochlorite. After 3 weeks, patient

was asymptomatic and without visible edema. The last instrument of root canal preparation was used at the working length, and irrigation was performed with 2.5% NaOCl to remove the calcium hydroxide paste. Obturation was performed with a gutta-percha cone cones, and endodontic cement AH Plus. After 60 months of the treatment completion, conventional radiography showed periapical lesion/cyst healing and repositioning of the roots of the 12 and 12 (Fig 2C), showing a positive prognostic for the treatment. The patient remains under observation, under no reports of signs or symptoms.

Fig 2 A) Initial radiograph showing the lesion area involving teeth 11 and 12; B) Radiographic image showing filled canals and extrusion of the calcium hydroxide and iodoform paste; C) Follow-up radiography performed after 60 months, revealing the healing of the lesion.



DISCUSSION

The true periapical cyst is defined as a chronic inflammatory lesion at the teeth periapices well delimited with an epithelium line at a closed pathological cavity (AL KHASAWNAH et al., 2018; KEREKES and TRONSTAD, 1979). Historically, studies reported that cysts lesions could be healed using non-surgical treatment with a success of 85-90% rate (KEREKES and TRONSTAD, 1979; SCHULZ et al., 2009). Contamination of the root canal system can lead to the formation of periapical lesions, especially when not immediately treated. A definitive diagnosis between these lesions can be made only through biopsy followed by histopathological examination, however, previous studies

suggested that lesion size can be used to distinguish a periapical granuloma from a cyst (SOOD et al., 2015; SHARMA et al., 2015).

In the 2 cases reported here, the presence of a large lesion involving 1 or more non-vital teeth, a circumscribed and well-defined radiolucent area, and divergence of the adjacent roots were observed on the diagnostic radiograph, were suggestive of a periapical cyst, according to the literature (SOOD et al., 2015; SHARMA et al., 2015).

The treatment options for large periapical lesions range from conventional nonsurgical root canal therapy to surgical interventions (SOOD et al., 2015). However, because of the several disadvantages of surgery, literature recommends nonsurgical endodontic intervention as the first choice (3. 8. SHARMA et al., 2015; CALISKAN, 2004). A significant success rate was observed with calcium hydroxide paste in cases with large periapical lesions/cysts (AL KHASAWNAH et al., 2018; SIQUEIRA Jr et al., 2005). Calcium hydroxide paste has antibacterial properties and neutralizes acidic pH by activating the alkaline phosphatase SHARMA et al., 2015; AL KHASAWNAH et al., 2018; MOHAMMADI and DUMMER, 2011. A previous study also suggested using iodoform with calcium hydroxide paste in the treatment of periapical lesions (AL KHASAWNAH et al., 2018). The literature emphasizes on the direct contact between calcium hydroxide and iodoform with injured periapical tissue for wound healing (SIQUEIRA Jr et al., 2005; BURKOVSKI and KARL, 2019).

CONCLUSION

It is fundamental to perform periodical follow-up of the lesion after the endodontic treatment as an auxiliary tool to monitor the healing process. Necrotic teeth with large lesions or cysts should be treated preferentially with a nonsurgical endodontic intervention. The nonsurgical management of teeth associated with large lesions or cysts can result in total healing without the need for surgical intervention.

REFERENCES

1. Al Khasawnah Q, Hassan F, Malhan D, Engelhardt M, Daghma DES, Obidat D, et al. Nonsurgical Clinical Management of Periapical Lesions Using Calcium Hydroxide-Iodoform-Silicon-Oil Paste. **BioMed Research International**. 2018;2018:8.

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2. Burkovski A, Karl M. Lack of evidence for the necessity of root canal obturation. **Quintessence Int** 2019;50:22-8.
3. Caliskan MK. Prognosis of large cyst-like periapical lesions following nonsurgical root canal treatment: a clinical review. **Int Endod J** 2004;37:408-16.
4. Kerekes K, Tronstad L. Long-term results of endodontic treatment performed with a standardized technique. **J Endod** 1979;5:83-90.
5. Mohammadi Z, Dummer PM. Properties and applications of calcium hydroxide in endodontics and dental traumatology. **Int Endod J** 2011;44:697-730.
6. Nair PN. On the causes of persistent apical periodontitis: a review. **Int Endod J** 2006;39:249-81.
7. Schulz M, von Arx T, Altermatt HJ, Bosshardt D. Histology of periapical lesions obtained during apical surgery. **J Endod** 2009;35:634-42.
8. Sharma S, Sharma V, Passi D, Srivastava D, Grover S, Dutta SR. Large Periapical or Cystic Lesions in Association with Roots Having Open Apices Managed Nonsurgically Using 1-step Apexification Based on Platelet-rich Fibrin Matrix and Biodentine Apical Barrier: A Case Series. **J Endod** 2018;44:179-85.
9. Siqueira Jr JF, Rocas IN, Alves FR, Campos LC. Periradicular status related to the quality of coronal restorations and root canal fillings in a Brazilian population. **Oral Surg Oral Med Oral Pathol Oral Radiol Endod** 2005;100:369-74.
10. Sood N, Maheshwari N, Gothi R, Sood N. Treatment of Large Periapical Cyst Like Lesion: A Noninvasive Approach: A Report of Two Cases. **Int J Clin Pediatr Dent** 2015;8:133-7.