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CLINICAL AND RADIOGRAPHIC EVALUATION OF LONG-TERM OUTCOMES OF ENDODONTIC TREATMENT OF CHRONIC APICAL PERIODONTITIS

Shukurov Nodir Nosirovich
Asian International University, Bukhara, Uzbekistan
sukurovnodir035@gmail.com
https://orcid.org/0009-0003-5243-9058
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Abstract. A clinical and radiographic evaluation of long-term outcomes of endodontic treatment of chronic apical periodontitis was performed in 56 patients. Treatment effectiveness was assessed based on changes in clinical symptoms, the degree of periapical bone healing, and the preservation of tooth function at 6 and 12 months. The rate of complete radiographic healing increased from 30.4% to 42.9%, while the overall proportion of patients demonstrating complete or partial periapical tissue healing reached 85.7% at 12 months. Absence of spontaneous pain was recorded in 94.6% of patients, and tooth function was preserved in 96.4%. Differences were identified between the resolution of clinical symptoms and the radiographic restoration of periapical structures.

Keywords: chronic apical periodontitis, endodontic treatment, periapical bone destruction, radiographic healing, long-term outcomes.

КЛИНИКО-РЕНТГЕНОЛОГИЧЕСКАЯ ОЦЕНКА ОТДАЛЁННЫХ РЕЗУЛЬТАТОВ ЭНДОДОНТИЧЕСКОГО ЛЕЧЕНИЯ ХРОНИЧЕСКОГО АПИКАЛЬНОГО ПЕРИОДОНТИТА

Шукуров Нодир Носирович
sukurovnodir035@gmail.com
https://orcid.org/0009-0003-5243-9058
Азиатский международный университет, Бухара, Узбекистан

Аннотация. Проведена клинико-рентгенологическая оценка отдалённых результатов эндодонтического лечения хронического апикального периодонтита у 56 пациентов. Эффективность лечения определяли по динамике клинической симптоматики, степени восстановления периапикальной костной ткани и сохранению функциональной полноценности зубов через 6 и 12 месяцев. Частота полного рентгенологического заживления увеличилась с 30,4 до 42,9%, а совокупная доля случаев полного и частичного восстановления периапикальных тканей к 12-му месяцу достигла 85,7%. Отсутствие спонтанного болевого синдрома отмечено у 94,6% пациентов, сохранение функции зубов — у 96,4%. Установлены различия между сроками исчезновения клинических проявлений и рентгенологического восстановления периапикальных структур.

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Ключевые слова: хронический апикальный периодонтит, эндодонтическое лечение, периапикальная деструкция, рентгенологическое заживление, отдалённые результаты.

Relevance. Healing of periapical tissues following endodontic treatment of chronic apical periodontitis is a prolonged reparative process influenced by the initial condition of the surrounding bone, the severity of inflammatory changes, and the quality of root canal preparation. Resolution of pain does not always coincide with complete disappearance of the periapical lesion. According to the 2023 clinical practice guidelines of the European Society of Endodontology, the assessment of treatment outcomes requires systematic follow-up using both clinical and radiographic criteria. Determining the timing of complete and partial periapical healing provides a more objective assessment of treatment effectiveness.

Objective. To evaluate the long-term clinical and radiographic outcomes of endodontic treatment of chronic apical periodontitis by determining the rates of complete healing, partial repair of periapical tissues, and preservation of the functional integrity of treated teeth.

Materials and Methods. The study included 56 patients with chronic apical periodontitis who underwent endodontic treatment. Clinical and radiographic evaluations were performed at 6 and 12 months. Clinical examination included assessment of spontaneous pain, percussion sensitivity, and the functional status of treated teeth. Radiographic changes were evaluated according to the degree of bone regeneration in the periapical region. Treatment outcomes were classified into three categories: complete healing, characterized by disappearance of the pathological lesion; partial healing, characterized by a reduction in the area of bone destruction; and absence of favorable radiographic changes. The results were expressed as absolute numbers and percentages of the total study population.

Results and Discussion. At 6 months after endodontic treatment, complete radiographic healing of periapical lesions was observed in 17 patients (30.4%), partial periapical bone healing in 30 (53.6%), and absence of favorable radiographic changes in 9 (16.1%). At 12 months, complete restoration of periapical structures was recorded in 24 patients (42.9%), partial healing in 24 (42.9%), and persistent pathological changes without evidence of healing in 8 (14.3%). The rate of complete radiographic healing increased by 12.5 percentage points, while the proportion of patients without favorable radiographic changes decreased by 1.8 percentage points. The overall rate of complete or partial periapical healing reached 85.7% by the end of the follow-up period.

At 12 months, spontaneous pain was absent in 53 patients (94.6%), percussion sensitivity had returned to normal in 51 (91.1%), and functional integrity of the treated teeth was preserved in 54 (96.4%). The proportion of patients without spontaneous pain exceeded the rate of complete radiographic healing by 51.7 percentage points. These findings indicated differences between clinical improvement and the time required for periapical bone repair. Persistent radiographic abnormalities in the absence of pronounced clinical symptoms warranted continued follow-up.

Conclusion. Long-term outcomes of endodontic treatment of chronic apical periodontitis were characterized by an increase in the rate of complete radiographic healing from 30.4% at 6 months to 42.9% at 12 months. Favorable periapical tissue

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healing was recorded in 85.7% of patients by the end of follow-up, while spontaneous pain was absent in 94.6% and tooth function was preserved in 96.4%. The differences between clinical and radiographic outcomes highlighted the need for prolonged monitoring of periapical tissue repair, even after the resolution of subjective symptoms.

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