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Antibacterial effect and healing of chronic periapical lesions treated with diode laser

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The main goal of root canal treatment is total irradiation of the microorganisms to attain bacteria-free environment both in the tooth and at the apex, including the periodontal tissue and the surrounding apical bone to favor the environment for healing without the need of periapical surgery in some resistant cases. Recently, the use of the lasers has gained an increased interest in the endodontic field due to its bactericidal effect and bio-stimulation effect. In this case report, five cases diagnosed with necrotic pulp and periapical lesion were selected. A CBCT scan for each patient to verify the size (5-10 mm) and bone density of the periapical lesion preoperatively. Microbiological samples were taken after accessing the root canal, after conventional root canal treatment and after canal irradiation with diode laser (980 nm) coupled with the optical fiber 200 µm to assess the bacterial count after each procedure. A second CBCT scan was taken for each patient at 6 months follow up to evaluate the healing process. Complete irradiation of the bacteria after canal irradiation with diode laser was obtained. The evaluation of the CBCT scan showed decrease in the periapical lesion size and increase in its density after the 6 months follow up. It can be concluded that laser therapy may be used as an adjunct to conventional endodontic therapy to improve the treatment quality of infections of the oral cavity. This may lead to save the patients from the invasive surgical intervention

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