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The use of an Er:YAG laser in addition with an operation microscope for the treatment of an apicoectomy

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Abstract

Objective: This retrospective clinical investigation intends to examine the effectiveness of an Er:YAG laser used in conjunction with a dental operation microscope for apicoectomy, in comparison with the traditional surgical procedure.

Background data: The Er-YAG laser has shown great potential in application to periapical surgery; however, clinical data are rare.

Methods: To this end, 78 patients who had undergone apicoectomy in a private dental office were selected; 41 patients were treated by the traditional surgical technique for apicoectomy and 37 patients were treated using an Er:YAG laser under microscopic control. The five cardinal symptoms of inflammation were taken as clinical parameters/examination criteria and evaluated after postoperative days 1, 7, and 180, where days 7 and 180 after the operation can be regarded as the customary times for follow-up controls at the private dental office.

Results: Microscopically guided, laser-assisted treatment seems to favor a better healing process overall. After the first postoperative day, redness and swelling of the operation area were significantly reduced ($p<0.001$ and $p=0.0048$). Seven days after the operation, all inflammation parameters were statistically significantly lower in the laser-treated group ($p<0.05$). On day 180, 6 out of 41 patients in the control group still displayed a disturbed function of the treated teeth, whereas none of the patients in the laser group experienced further complaints.

Conclusions: As a result, it can be ascertained that the use of an Er:YAG laser as an adjuvant tool in periapical surgery, with additional control by an operation microscope, displays significantly better results in terms of postoperative healing, in comparison with the conventional surgical treatment of apicoectomy.

Biography

Markus Lietzau finished his final exam in 2007 for dentistry. Also he studied medicine from 2002- 2009. In 2008 he became specialist in Endodontology and Implantology. One year later he got the title “Micoro Dentistry and Micro Surgery Specialist”. He is a speaker for bone rebuild techniques and Implantology/ Endodontology.