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Management of oral leukoplakia with an 808-nm high-power diode laser: a single-center experience

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Abstract

Purpose: High-power diode laser emerges as a promising approach to the treatment of oral leukoplakia (OL); however, its short- and long-term effects have been barely explored. This study evaluated the postoperative endpoints and the recurrence rate of high-power diode laser treatment in a well-defined series of patients with OL.

Methods: A prospective analysis was performed on 22 individuals comprising 31 OL. The lesions were irradiated using the following protocol: Indium-Gallium-Arsenide diode laser, 808 nm, continuous-wave mode, 1.5-2.0 W, 780.0 ± 225.1 J, and 477.1 ± 131.8 s. Postoperative pain was assessed with a visual analog scale at three endpoints. Clinical follow-up was performed on all patients and the Kaplan-Meier test was used to analyze the probability of recurrence.

Results: The series consisted mostly of women (72.7%) with a mean age of 62.8 years. A single laser session was performed in 77.4% of cases. The median score on the scale that assessed pain on the 1st, 14th and 42nd postoperative day was 4, 1, and 0, respectively. The mean follow-up period per lesion was 28.6 months (range: 2-53 months). A complete response was observed in 93.5% of OL cases, while 6.5% had recurrence. The probability of recurrence at 39 months was 6.7%. No patient experienced malignant transformation.

Conclusion: High-power diode laser for the treatment of OL is safe and effective during the trans- and postoperative period. These findings represent an alternative approach to the management of OL, mainly because a low recurrence rate was observed.

Keywords: Diode laser; Laser surgery; Oral leukoplakia; Oral potentially malignant disorders; Treatment outcome.

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