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Received: 13 September 2022 | Revised: 7 October 2022 | Accepted: 23 October 2022

DOI: 10.1111/jocd.15494

JCD Journal of Cosmetic Dermatology WILEY

LETTER TO THE EDITOR

Combination of CO_2 laser therapy and pulsed dye laser therapy for the treatment of actinic cheilitis

To the Editor,

Actinic cheilitis (AC) is a premalignant condition affecting the mucosal epithelium of the lip, generally related to the chronic exposure to UV solar irradiation.[1] Clinical manifestations of AC include dryness, atrophy, scaling, erythema, ulceration, and poorly demarcated borders.[2,3] It may progress to squamous cell carcinoma (SCC) of the lip, which has a metastasis rate four times higher than a peripheral cutaneous SCC,[4,5] so early diagnosis is a challenge for dermatologists. The treatment of AC is directed to destruction of the damaged epithelium, promoting normal re-epithelization of the lip. Various surgical and non-surgical methods such as chemical peeling with trichloroacetic acid, topical tretinoin, 5-fluorouracil, diclofenac, imiquimod, cryosurgery, electrocautery, dermabrasion, carbon dioxide (CO_2) laser, Er:YAG laser, scalpel vermilionectomy, and photodynamic therapy (PDT) have been used.[2] Based on recent studies, surgical-assisted laser therapy seems to outperform the other therapeutic options highlighting high rates of complete response, and low recurrence rates. In addition, most studies underline relevant cosmetic outcomes and excellent patient satisfaction. However, sequential employment of two different therapies seems to act synergically on reaching the final therapeutic outcome. To date, in literature there are only studies that use association of PDT and CO_2 laser therapy for the treatment of these conditions.[3,5] We report the case of two male patients, respectively, aged 73 (patient 1) and 79 (patient 2), presented to our hospital for persistent scaly erythematous-ulcerated plaque of the lower lip (Figure 1A,B) which clinically and dermoscopically suggested the diagnosis of actinic cheilitis. One of them referred to had relapsed after being treated at another center with CO_2 laser only. We performed punch biopsy in both patients, in order to rule out the presence of a SCC, confirming our diagnostic hypothesis. First, under local anesthesia, the patients underwent a CO_2 laser (Smartxide,[2] DEKA MELA, Florence) ablative treatment (power 0.5–1.5 W, frequency 20 Hz) (Figure 1C) and, immediately after we performed Flash-lamp Pulsed-Dye Laser (FPDL) (Synchro Vas-Q, DEKA MELA, Florence) using a 7-mm spot size, 1.5 ms pulse duration, and energy fluence of 8 J/cm^2. After therapy, they were advised to apply until complete re-epithelization (from 5–10 days) a topical non-medicated ointment containing panthenol and glycerin on the treated area, in order to avoid excessive dryness of the zone and to promote a quickly healing. We did again only FPDL after 3 and 5 weeks. Patients were warned to avoid sun and cosmetics in the 4 weeks immediately after lasers. A follow-up was performed after 6 and 12 months (Figure 1D,E) to evaluate the efficacy of the combined treatment. We suggested patients to undergo a second biopsy in order to demonstrate the histological healing of the lesions, but both patients refused because there was no clinical

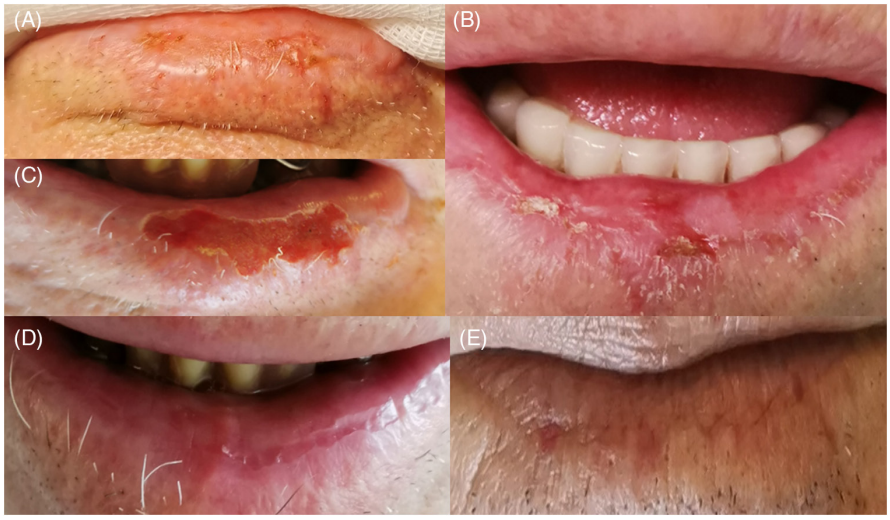


FIGURE 1 lesions before laser treatment in patient 1 (A) and patient 2 (B), immediately after CO_2 laser ablation in patient 1 (C) and after 1 year follow-up in patient 1 (D) and patient 2 (E).

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evidence of residual disease. The aesthetic results were satisfactory, with none or very little scarring outcome. In addition, patients reported mild discomfort related to the procedure that was generally well controlled by application of topical ointment. We can reasonably state that combined CO_2—FPDL therapy represents a useful tool in the treatment of AC of the lip. Vaporization of intracellular water induced by CO_2 laser acts by local ablation of abnormal epithelium with a good hemostasis of the adjacent structures.[5] FPDL, by emitting a 595 nm wavelength, targets hemoglobin chromophore of vascular structures and may prevent scar hypertrophy.[6] We could confirm that this combined approach is promising, not only for the proved efficacy and good aesthetic outcome, but also for the minimum associate discomfort. Obviously, further studies with longer follow-up periods and wider sample of patients are necessary to validate this technique as standard therapy for AC.

AUTHOR CONTRIBUTIONS

G.C. and C.D. have given substantial contributions to the conception or the design of the manuscript. All authors have participated to drafting the manuscript. P.R. and E.T. revised it critically. All authors have read and approved the final manuscript.

CONFLICT OF INTEREST

None declared.

DATA AVAILABILITY STATEMENT

Data sharing is not applicable as no new data were generated.

ETHICAL APPROVAL

Informed consent and permission for publication of medical images were obtained from the patients.

INFORMED CONSENT

Given for publication in scientific journals.

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