

Ablative Fractional Erbium:YAG Laser Resurfacing: A Treatment Option for Acne

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Introduction

Acne vulgaris is a disease of the pilosebaceous unit, characterized by a hyper keratinization process, comedo formation, and inflammatory reactions [1]. The use of lasers for the treatment of acne has been described, but the role of resurfacing lasers for active acne has not been clarified yet.

Case Presentation

We present the cases of 3 women with noninflammatory and inflammatory acne lesions. They received laser therapy because they refused prolonged topical treatments or other systemic acne therapies. No treatment was given to the patients in the previous 6 months prior to laser treatment. The

patients gave informed consent to mild laser rejuvenation therapy with ablative fractionated erbium:YAG laser, (Xlase plus; Biotec Italia srl, Dueville, VI).

These patients were treated using the standard protocol for mild resurfacing and rejuvenation. Employed parameters were 1.5 ms, 3.5 mJ/cm², 5 Hz on the cheeks and the chin, and the rest of the face was treated with 1.0 ms, 2.8 mJ/cm², 6 Hz. One laser session per month for 3 months was performed for each patient. Overlapping pulses were performed over inflammatory lesions. After the laser sessions, the patients were instructed to apply sunscreen SPF 50+ and a hydrating cream for 30 days. All 3 patients tolerated the treatment without any reported side effects. They showed a visible improvement of the skin texture and a reduction of active acne.

The average value for the Investigator Global Assessment scale (IGA) was indicative of a mild-moderate acne at baseline (IGA 1-2) and decreased consistently to the almost-clear stage (IGA 0-1) at the last follow-up visit 3 months after the last laser session (Figures 1 and 2).

One paper describes the application of multiple sessions of erbium:YAG laser treatment for active acne on 2 patients with inflamed cystic acne [2]. Singh et al hypothesized that the mechanism of action of this laser source might be related to the photothermal effect acting on follicular hyperkeratosis and contributing to skin microbe modulation.

The short follow-up period of our patients represents a limitation of this case report. Further studies are needed to investigate the anti-acne effect of erbium: YAG laser and its mechanism of action with respect to comedogenesis and inflammation.

Conclusions

Acne is one of the most common skin diseases. Many therapeutic approaches are currently available for active acne, including laser treatments. However, the role of resurfacing

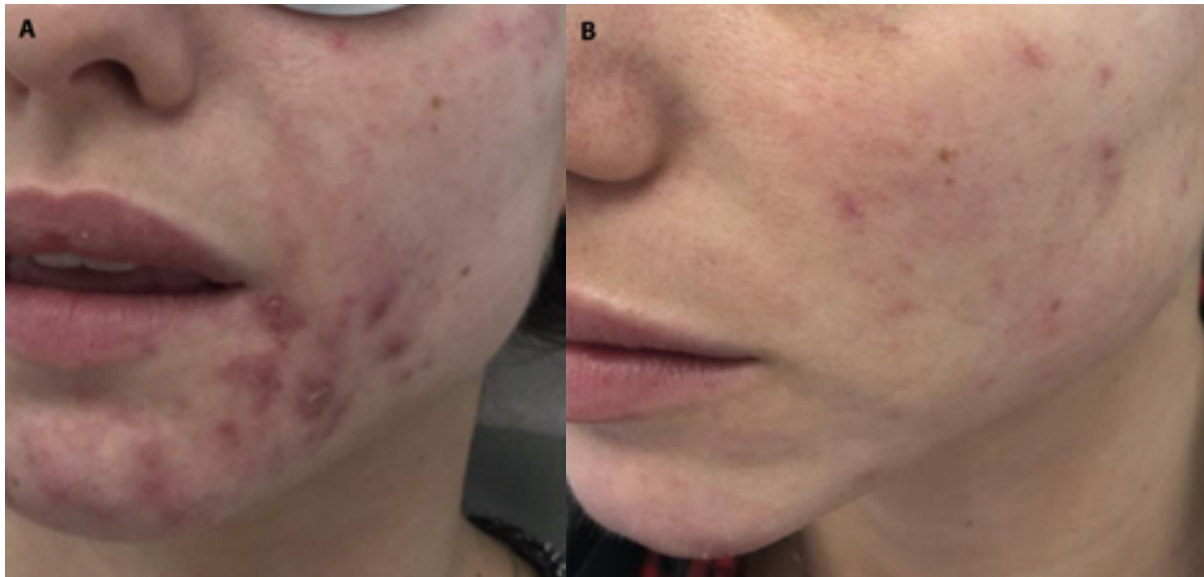


Figure 1. Clinical pictures of a 34-year-old woman. (A) Before the last erbium:YAG laser session. (B) 3 months after the last erbium:YAG laser session, showing the reduction of active acne lesions.

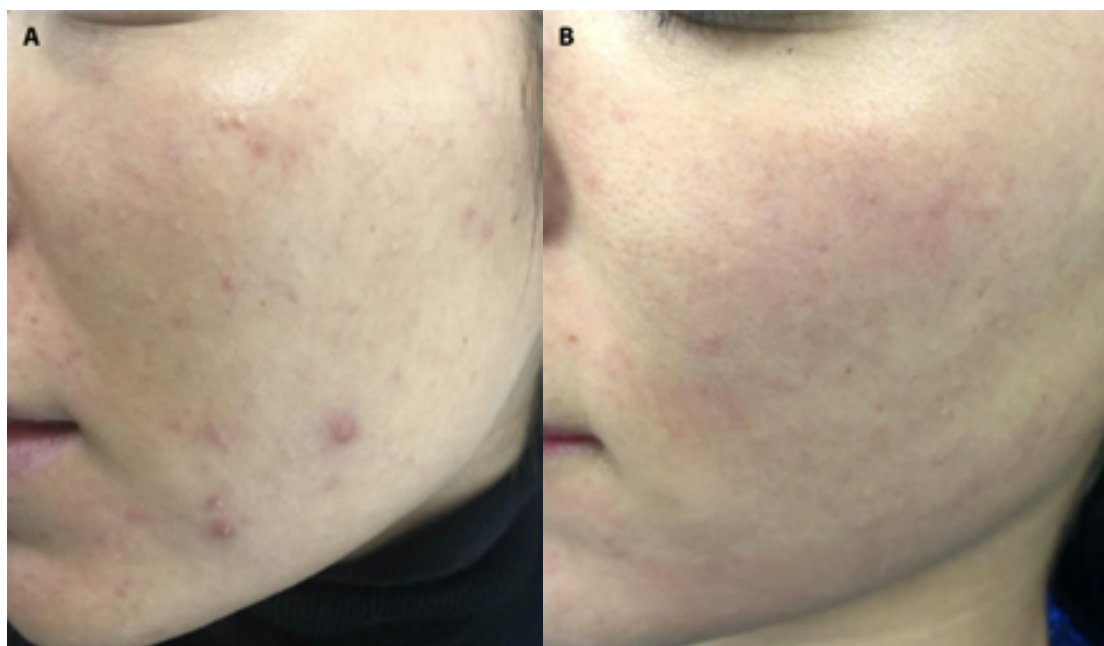


Figure 2. Clinical pictures of a 25-year-old woman. (A) Before the last erbium:YAG laser session. (B) 3 months after the last erbium:YAG laser session, highlighting a consistent reduction of both inflammatory and noninflammatory acne skin lesions.

with erbium:YAG laser has not been clarified yet. Results from clinical practice, such as in the cases presented herein, highlight the importance of further investigations in this field.

Informed consent: Written informed consent for publication of their clinical details and clinical images was obtained from all patients.

References

1. Manfredini M, Greco M, Farnetani F, et al. In vivo monitoring of topical therapy for acne with reflectance confocal microscopy. *Skin Res Technol.* 2017;23:36–40. DOI: 10.1111/srt.12298. PMID: 27273850.
2. Singh MZ, Singh SI, Basra PS. Erbium:YAG laser resurfacing in patients with inflamed cystic acne. *J Cosmet Laser Ther.* 2006;8(4):163-166. DOI: 10.1080/14764170601034711. PMID: 19839167.