Fractional Er:YAG Laser Therapy for Localized Scleroderma

Jasimna Kozarev, MD, PhD
Dermamedica Dr. Kozarev, Dept of Laser Dermatology, Sremska Mitrovica, Serbia

SUMMARY

Morphea is inflammatory skin disease of unknown etiology. Skin sclerosis seems to be the result of vascular damage. Therapy of localized scleroderma is unsatisfactory, with numerous treatments being used that have only limited success or considerable side-effects. The aim of this study was to determine whether fractional ErYAG laser resurfacing of affected area would be effective in patients with localized scleroderma. Because mast cells also elaborate a variety of cytokines, the presence of mast cells following laser irradiation and accompanying tissue revascularization may provide an explanation for the therapeutic outcome following microvasculature destruction in terms of stimulating collagen remodeling.

The cases are reported of two women patients presenting asymptomatic lesions: one in the anterior tibial region of the right leg, the other on the right anterior and posterior tibial region. Previous conventional therapies had failed. Both patients had no other similar cutaneous lesions. The lesions underwent punch biopsy, and the histopathological findings confirmed the diagnosis of morphea. Laboratory investigations showed no abnormalities.

The treatment was performed once monthly for 3 months with fractional ErYAG laser resurfacing (scanning device in turbo 3 mode, pw 100 ms, fl 24J/cm2), without any other specific local therapy. Clinical and dermoscopic assessment of the lesions was performed before treatment, during follow-up and at treatment end point. Patients evaluated the treatment pain level after each of the three sessions.

In all patients, the initial reactions to treatment consisted of erythema and minimal swelling in the treated areas; the patients reported a burning sensation but no significant pain. The erythema lasted between 2 and 10 days (mean, 4.6 days), and its severity was correlated with the number of laser passes. In all patients clinical, digital photography and dermoscopic assessment of the lesions before and at the treatment end point the therapy was highly effective.

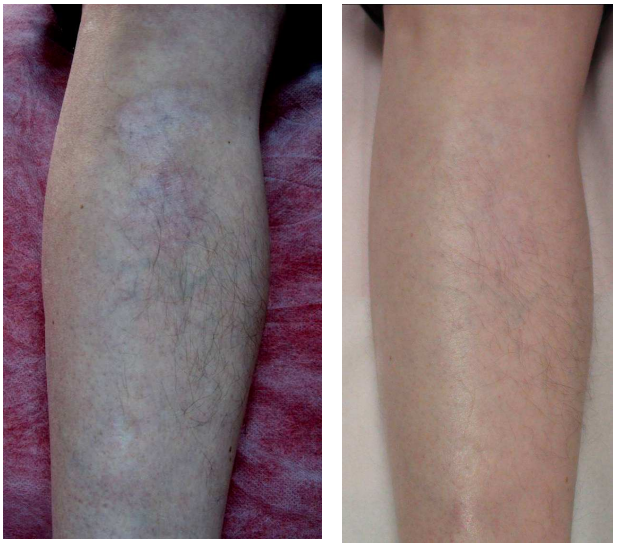

Fig. 1: a) Scleroderma lesions on the leg before the laser therapy; b) 3 months after the completion of treatment

The only side-effect was a transient hyperpigmentation of the treated lesions with no systemic side effects observed during treatment. Also, blinded evaluation of global images supported an improvement in skin texture in all treated sites.

Following treatment, both patients achieved complete clinical remission of the lesions, with a definitive improvement in the lesions' initial disfiguring features.

On the basis of the present results, fractional ablative photothermolysis appears to be effective, and the outcome is predictable. Controlled trials are now necessary to confirm these preliminary results.

REFERENCES

1. Vilela FA, Carneiro S, Ramos-e-Silva M: Treatment of morphea or localized scleroderma: review of the literature J Drugs Dermatol. 2010 Oct;9(10):1213-9.
2. Zwischenberger BA, Jacobe HT. A systematic review of morphea treatments and therapeutic algorithm, J Am Acad Dermatol. 2011 Nov;65(5):925-41.
3. Toledano C, Rabhi S, Kettaneh A, Fabre B, Fardet L, Tiev KP, Cabane J. Localized scleroderma: a series of 52 patients, Eur J Intern Med. 2009 May;20(3):331-6.