Early Treatment of Self-inflicted Forearm Scars

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Introduction:

The use of Er:YAG laser ablation for scar management has exhibited effectiveness and versatility across a plethora of dermal irregularities. "Scar formation is a multifaceted biological process that results from tissue injury and involves complex activation pathways along with a variety of cellular responses." This cascade leads to the deposition of extracellular matrix constituents, initiation of neovascularization, and focal structural rearrangements within the impacted tissue. Distinct scar presentations demand tailored therapeutic approaches, considering variables such as hypertrophy, atrophy, post-inflammatory pigmentation changes, and neovascularization adjacent to the scar. The timing of interventions for specific targets is of paramount importance in scar management, as early intervention can prevent the manifestation of adverse sequelae such as mature scarring. In light of these multifaceted considerations, we present an innovative, multimodal protocol for scar treatment encompassing different modalities, where the attending physician should assess the scar and decide on the best treatment option.

	Step 1	Step 2	Step 3	Step 4
Wavelength	2940 nm Er:YAG	1064 nm	1064 nm	1064 nm
Handpiece	R11	R28	R35NX	FS20A
Spot size /	2-4 mm	8 mm	4 mm	9x9 / 9
Energy / Fluence	2 J/cm^2	2.5-3 J/cm^2	10-15 J/cm^2	20 mJ/px
Mode/Pulse	MSP Basic	MaQX-1	FRAC3 0.6 ms	MaQX-2
Frequency	4 Hz	4 Hz	4 Hz	3 Hz
Water			1	
Air			1	
Passes/Repeats	1-2 passes	4-6 passes	10 passes	1-4 passes, until pinpoint bleeding
Sessions	1 session if there is remaining crusting around the scar	1 session per month for 4-6 months	2-4 sessions per month for 4-6 months	1 session per month for 4-6 months

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Dr. Nilufer Bahadirli practices as a plastic surgeon in Istanbul, Türkiye, specializing in breast and body surgeries. Her focus extends to minimally invasive treatments such as botulinum toxin and filler injections, laser therapies, regenerative procedures, and various mesotherapies, particularly targeting anti-aging and skin rejuvenation.

CLINICAL CASE:

In this case study, we present the management of a 17-year-old female patient with a self-inflicted scar on the forearm that occurred one month prior. The patient received no previous interventions or wound repairs, apart from standard wound dressings. Our primary objective in this case was to prevent the development of hypertrophic scarring and post-inflammatory hyperpigmentation, a common outcome following unrepaired cuts. While the role of Er:YAG laser treatment is not considered imperative in such cases, we conducted an initial session to address the remaining crusts of secondary wound healing utilizing the R11 handpiece with a 2-4 mm spot size and 2 J/cm2. This first step was performed only once as a superficial peeling. The second step involved multiple passes with the R28 handpiece, 8-mm spot size and 2.5-3 J/cm2 until a discernible erythema was observed, typically requiring 4-6 passes, to address possible hyperpigmentation. Step 3 was performed with the R35NX handpiece, 4 mm spot size, 0.6 ms, 10-15 J/cm2 over weekly sessions for a consecutive duration of two months, facilitating tissue regeneration, followed by monthly reinforcement sessions. Lastly, Step 4 employed the FS20A handpiece (20 mJ/px), with pinpoint bleeding as an endpoint of the procedure for scar remodeling.

Our clinical observations indicate that self-inflicted scars are typically left to heal by secondary intention. As a result, they often develop into wider scars accompanied by post-inflammatory hyperpigmentation due to the prolonged healing period. This hyperpigmentation can significantly affect the aesthetic appearance of the scars. Consequently, we focus on strategies to prevent the formation of post-inflammatory hyperpigmentation before it occurs.

Before	After 3 sessions	3 months after six sessions