Treatment of Iatrogenic PIH Case with Picosecond Nd:YAG and Long-Pulse Nd:YAG: a Case Report

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Introduction:

Post-inflammatory hyperpigmentation is a common iatrogenic side effect of laser treatment, especially in darker skin type patients. With the advancement of laser technology, picosecond lasers now offer faster results with improved patient satisfaction in an effective and safe manner.

Laser	SP Dynamis	StarWalker PQX		
	Step 1	**Step 2**	**Step 3**	**Step 4**
Wavelength	Nd:YAG (1064 nm)	Nd:YAG (1064 nm)	Nd:YAG (1064 nm)	Nd:YAG (1064 nm)
Handpiece	R33-T	Black F5	Black	Black
Mode	FRAC-3	Pico	Pico	Pico
Pulse Duration	0.6 ms	300 ps	300 ps	300 ps
Spot size	6 mm	5x5	10mm	4 mm
Fluence	25 J/cm^2	8 mJ/px	0.2 J/cm^2	1.2 J/cm^2
Frequency	3 Hz	10 Hz	10 Hz	10 Hz
Pass	Multiple passes	Multiple passes	Multiple passes	Multiple passes
Endpoint	Mild erythematous	Mild erythematous	-	-
Anaesthesia	Numbing cream	Numbing cream	Numbing cream	Numbing cream
Target	Pigmented area	Whole face	Whole face	Whole face
Sessions	5 sessions with 1 month interval			

Dr. Wong Yeut Sun completed his medical training at the National Defense Medical Center in Taipei, Taiwan in 2011. From 2011 to 2013 he performed internships in the Dermatology Department of Tainan ChiMei Hospital and the Plastic Surgery Dept. of Taipei Veteran General Hospital. After working as a Medical Officer at the Sungai Buloh and Tawau hospitals, he began his current position in 2017 as an aesthetic physician in the Davinci Clinic at the National Taiwan University Hospital in Taipei.

CLINICAL CASE:

The following case involves a 38-year-old female with post-inflammatory hyperpigmentation following CO_2 laser treatment. Upon visiting us, the patient had experienced persistent erythema for one month after the laser treatment. There was no burning sensation, no itchiness, and no peeling. According to the patient, it took 2 weeks for the skin peeling to stop, and the recovery process was long. In this instance, we decided to use picosecond laser to help with lightening of the pigmentation and also use long-pulse laser to deal with the erythema changes.

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EMLA cream was applied for 20 minutes on the area of interest prior to the treatment. The first step of the treatment was to target the erythema by using FRAC3 mode with a spot size of 6 mm and a fluence of 25 J/cm^2 as shown in the table. The endpoint was mild erythema, slightly more than usual given that there was some redness to begin with.

The second step of the treatment was to target the whole face with PQX using the Black F5 handpiece with a fluence of 8 mJ/px at 10 Hz with multiple passes. The endpoint was mild erythema as well. The third and last step was to target the whole face using 10 mm for dermal and 4 mm for epidermal rejuvenation. Multiple passes were done for both the 3rd and last step, and there was minimal to no endpoint.

Moisturizer and sunscreen were applied to the patient after treatment. Advice for patient was to avoid long periods or extreme sun exposure.

The before and after result was after 5 sessions with a 1-month interval. The patient was satisfied with the result. No complication was observed. This showed that the combination of picosecond Nd:YAG and long-pulse Nd:YAG is efficient and safe in dealing post-inflammatory hyperpigmentation and erythema.

Before	After 5 sessions