1064 nm Picosecond Laser for Treatment of Epidermal Pigmentation

Wong Yeut Sun, MD

Introduction:

This patient was a 29-year-old female with Fitzpatrick skin type III who presented with epidermal pigmentation (since youth) and uneven skin tone. Her expectation was to lighten the pigmentation to a point where it could be easily covered with makeup, and she preferred not to have downtime as she had a photo shooting later that week. 1064 nm picosecond laser was used in this treatment with the protocols shown in the table. The after pictures shown here were taken 1 month after she underwent the procedure.

Laser	StarWalker PQX		
	Step 1	**Step 2**	**Step 3**
Wavelength	1064 nm	1064 nm	1064 nm
Handpiece	Black	Black	Black F5
Mode	PICO	PICO	PICO
Spot size	4 mm	10 mm	5X5 px, 5 mm
Intensity	3 J/cm^2	0.4 J/cm^2	1.7 mJ/ px
Frequency	3 Hz	7 Hz	8 Hz
Passes	3 stacks	Multiple passes	2 passes
Endpoint	Mild lightening of pigment	–	Mild erythema
Anesthesia	Numbing cream with cold air	Numbing cream	Numbing cream with cold air
Target	Epidermal pigment	Whole face	Whole face
Sessions	1 session		

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 first step of the treatment is to target the epidermal pigmentation by using the BLACK handpiece, with spot size 4 mm, fluence 3.0 J/cm^2 and frequency 3 Hz. Three stacks were done on the pigment. The pain from the laser was reported as mild by the patient and was tolerable. The endpoint was lightening of the pigmentation.

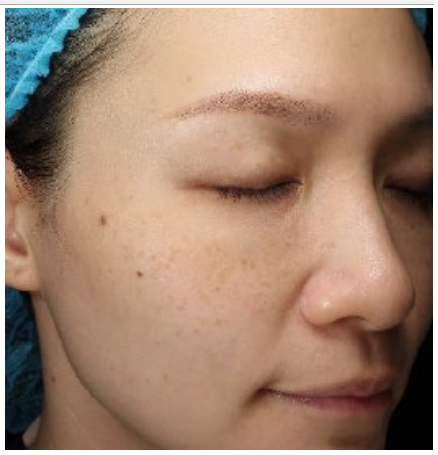
The second step of the treatment was to target other areas using the BLACK handpiece, with spot size 10 mm, fluence 0.4 J/cm^2 and frequency 7 Hz, with multiple passes to achieve toning of the skin color.

The final step was to use the BLACK F5 handpiece, intensity 1.7 mJ/px and frequency of 8Hz. Multiple passes were done until there was some erythema on the patient's face. This step was to create a series of LIOBs to lighten the general skin tone of the patient.

EMLA cream was applied for 30 minutes prior to the procedure and cold air was used to mitigate the pain. Moisturizer and sunscreen were applied to the patient after the treatment. Advice given to the patient was to avoid long periods/extreme sun exposure.

The patient came back for follow-up after 1 month and was satisfied with the result after only 1 session. No complication was observed. The patient is happy with the result, and the erythema from step 3 reportedly diminished after half a day.

This showed that 1064 nm picosecond laser can lighten epidermal pigment without concern about PIH, which would be unlikely if one were to perform with 532 nm laser in a darker skin individual. This also showcases the fact that the PQX laser has a strong enough peak power to be able to perform this result without any complication.

Before	Before	Before
		
After one session	**After one session**	**After one session**