Combination of Picosecond and Long-Pulse Nd:YAG for Melasma Treatment

Dr. Wong Yeut Sun

Introduction:

This patient was a 47-year-old female, Fitzpatrick skin type 4, who came to the clinic with a 5-year history of melasma on her cheek. Before visiting us, the patient claimed that she underwent a Picosure laser treatment (755 nm) for her melasma (7 sessions with a 1-month interval), but it didn't improve at all and sometimes the pigment worsened. While she was receiving the Picosure laser treatment, an oral form of tranexamic acid was prescribed with a 3-month dosage, but it was discontinued due to the disruption of her period.

She visited us with expectations to lighten her melasma, but she was not keen for injections or oral medications. The results shown here are monotherapy only using laser.

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	Black F5	Black	Black
Mode	FRAC 3	Pico	Pico	Pico
Pulse duration	0.6 ms	300 ps	300 ps	300 ps
Spot size	3mm	5x5 mm	10 mm	4 mm
Fluence	40 J/cm^2	5 mJ/px	0.20 J/cm^2	1.2 J/cm^2
Frequency	3 Hz	10 Hz	10 Hz	10 Hz
Pass	2 passes	Multiple passes	Multiple passes	Multiple passes
Endpoint	Mild erythema	Mild erythema	-	-
Anesthesia	Numbing cream			
Target	Melasma	Whole face	Whole face	Whole face
Sessions	2 sessions			

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:

EMLA cream was applied for 30 minutes on the area of interest prior to the treatment. The first step was to target the melasma with the SP Dynamis using Nd:YAG with the R33-T handpiece, FRAC3 mode, 3 mm, and 40 J/cm2 with a pulse duration of 0.6 ms. The purpose of this step was using FRAC3 to modulate the inflammation and stimulate collagen; the benefit of FRAC3 is that it induces fractional heat in a 3-dimensional manner with more efficacy and less healing time, which is vital in treating pigmentation like melasma.

The second step was to target the whole face using the PQX with the Black F5 handpiece and a fluence of 5 mJ/px. Multiple passes were done, and the end point was mild redness. This was followed by the third step using the Black handpiece with a spot size of 10 mm and a fluence of 0.20 J/cm2 for multiple passes. This step was to target dermal pigment with the largest spot size. No endpoint was noted due to the PQX mainly treating pigment by photomechanical action.

The last step was to target epidermal pigment by using a 4 mm spot size with the PQX Black handpiece. A fluence of 1.2 J/cm2 was used and multiple passes were done. As with the previous step, there was no visible endpoint noted.

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

The first after picture is after 1 session with a 1-month follow up. We did the same settings again the second time and followed up with the patient. The second after picture was taken at 2 months. No complication was observed. By observing her front view, the pigment was noticeably reduced, and the overall skin tone was more even. The patient was happy with the result.

Before	After one session	After last session