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Discovery Pico Advances Scar Treatment and Skin Rejuvenation

By John Jesitus, Contributing Editor

For treatments ranging from light rejuvenation to deep acne scars, the Discovery Pico laser from Quanta System (Samarate, Italy) offers fine tuning, flexibility and unprecedented power.

Celina Ying Yen Chuang, M.D., a dermatologist in Taipei, Taiwan, chose this device two years ago because she wanted to incorporate a picosecond laser into her practice.



Celina Ying Yen Chuang, M.D.
Dermatologist
Taipei, Taiwan

“I do a lot of acne scar treatments, and it seemed very intuitive to choose the device with the highest peak power (up to 1.8 GW at 1064 nm),” she advised. “Acne scars are notoriously difficult to treat, and using a lower peak power device did not make sense.”

The most amazing thing about the Discovery Pico is that it does not cause any post-inflammatory hyperpigmentation (PIH) when I use the fractional handpiece to treat acne scars,” Dr. Chuang continued. “Despite the high energy I use (0.7 to 1.0 J/cm²) and the bleeding and crusting observed after the procedure, there is almost never PIH.”

Acne scar treatment begins with full-face skin toning using the 1064 nm Nd:YAG wavelength and pulses of 450 ps. “This step evens out the skin tone and removes the residual PIH left after acne inflammation.”

Immediately after this step, Dr. Chuang treats brown spots with the 532 nm wavelength at 350 ps. Eventually, she applies

the fractionated handpiece at 450 ps with an 8 mm spot.

“This step is key for acne scar treatments,” she reported. “I use high energy settings and the endpoint is pinpoint bleeding and oozing. This handpiece initiates collagen remodeling.”

Applying the fractional handpiece causes laser-induced optical breakdown (LIOB) while leaving surrounding tissues intact. “Within the dermis, the laser generates a very rapid temperature increase, which causes target tissue to expand very quickly,” Dr. Chuang explained. This expansion generates a mechanical-acoustic wave that passes through and fractures the target.

Along with LIOB in the dermis, “I believe that a laser-induced plasma effect also plays a role in treating acne scars,” she added.

“The micro-lens array technology within the fractionated handpiece provides 90%

energy transfer and the longest beam profile, extending 2 mm beneath the epidermis,” Dr. Chuang reported. “In plain English, it will deliver the most energy with the most laser-tissue interaction.”

“Furthermore, the Discovery Pico’s plasma effect operates at a sub-ablative level, Dr. Chuang stated. “All of the other picosecond lasers on the market are non-ablative. However, with acne scar treatments, some ablation is needed in order to see great results.”

The plasma effect produced by the laser removes the epidermis, and probably some of the dermis, then causes collagen remodeling to ameliorate skin lines and roughness,” she continued. “Patients see results after each session, but a minimum of three treatments is needed to notice a difference in photographs.”

For skin rejuvenation treatments, Dr. Chuang focuses on the fractionated handpiece at 532 nm. With the Discovery Pico, “I can fine tune my energy to 0.05 J/cm²,” she expressed. “In treating Asian pigmentation, this setting can make a difference in avoiding PIH.”

Moreover, she added, “Thanks to the versatility of the Discovery Pico, I can do a soft treatment for skin rejuvenation and melasma, or I can ablate the entire epidermis without causing side effects for my scar patients.”



Acne scars before and three months after three sessions of Discovery Pico treatments (double pass of 1064 nm toning and 1064 nm fractionated laser)

Photos courtesy of Celina Ying Yen Chuang, M.D.