



PICO-CARE's HEXA-MLA Handpieces

PICO-CARE

Combines Picosecond and Long-Pulsed Laser Therapy for Effective Skin Rejuvenation



By Jaebong Lee, M.D., Ph.D.
WIDWIN Dermatology Clinic
Seoul, Korea

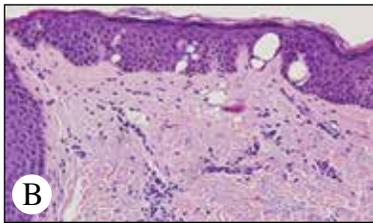


Figure 1. Tissue reactions with fractional laser and picosecond laser treatment. (A) Thermal ablation after fractional laser treatment. (B) Plasma-induced cavitation after picosecond laser treatment with a fractional handpiece (PICO-CARE HEXA-MLA handpiece).

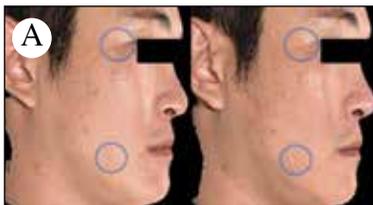


Figure 2. Acne scar treatment and skin rejuvenation with PICO-CARE HEXA-MLA. (A) Before and after one treatment session. (B) IMDT immediately after PICO-CARE HEXA-MLA treatment.

Skin rejuvenation is highly popular among patients seeking laser treatments. Treatments using picosecond lasers with fractional handpieces have become especially attractive due to the higher efficiency with decreased risk of photothermal damage, compared with conventional fractional lasers. PICO-CARE from WonTech, (Korea) is the first FDA-approved medical laser from an Asian manufacturer, and is equipped with a fractional handpiece (HEXA-MLA handpiece) that elicits excellent results in scar treatment and skin rejuvenation.

In skin rejuvenation treatments, laser energy is applied to induce photo-thermal effects on the skin. Conventionally this is believed to stimulate collagen and elastin fibers; however, treatment with picosecond lasers using a fractional handpiece has been deemed to elicit cold rejuvenation with plasma-induced cavitation. Additionally, long-pulsed lasers have been used for non-ablative rejuvenation, but more than five sessions are typically required to achieve the desired effects. Conversely, use of a picosecond fractional laser can shorten the course of action to one to three sessions.

Picosecond lasers with fractional handpieces have been found to produce laser-induced optical breakdown (LIOB). With LIOB, plasma-induced cavitation is created in the dermis or epidermis, while leaving the stratum corneum and basal membrane fully intact, resulting in a fast healing response including collagen remodeling.

Compared to conventional fractional ablative techniques, use of PICO-CARE with a HEXA-MLA handpiece has been found to induce LIOB, thereby offering the advantages of lower risk of side effects and higher efficacy. Moreover, by limiting damage to the stratum corneum and basal membrane, treatment is fast and effective. These characteristics can be seen in Figure 1.

Use of PICO-CARE HEXA-MLA shows greater efficacy in scar treatment and skin rejuvenation than subcision or fractional laser treatment, such that even one treatment session can achieve satisfactory results for the patient. As shown in Figure 2, a single treatment of PICO-CARE HEXA-MLA resulted in great improvement in typical acne scarring, periorbital fine lines and uneven skin texture.

Immediately after the PICO-CARE HEXA-MLA procedure petechiae appeared, which could interfere with a patient's daily life. The occurrence of petechiae can be alleviated with an additional long-pulsed 532 nm KTP laser as this wavelength is absorbed at a higher rate by hemoglobin, thus the appearance of petechiae and erythema after a HEXA-MLA

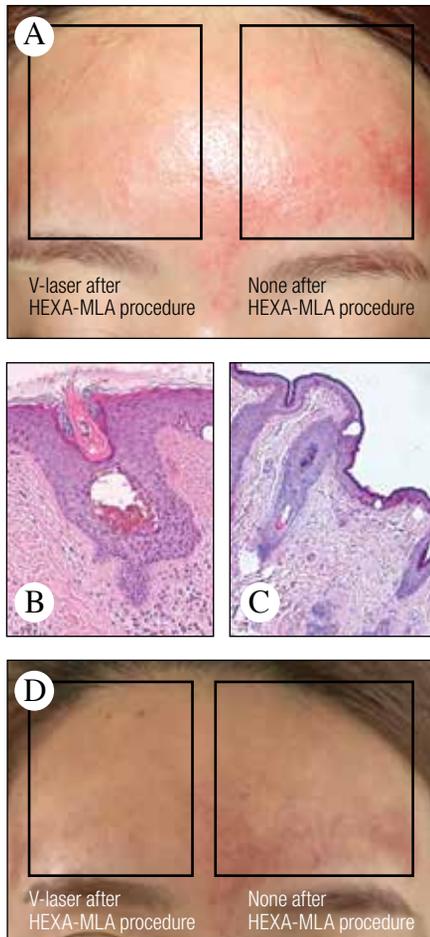


Figure 3. Comparison of PICO CARE HEXA-MLA treatment alone, and combination laser treatment with V-laser. (A) One day after treatment; V-laser treatment on right side and non-treatment on left side after HEXA-MLA procedure. (B) Three days after treatment.

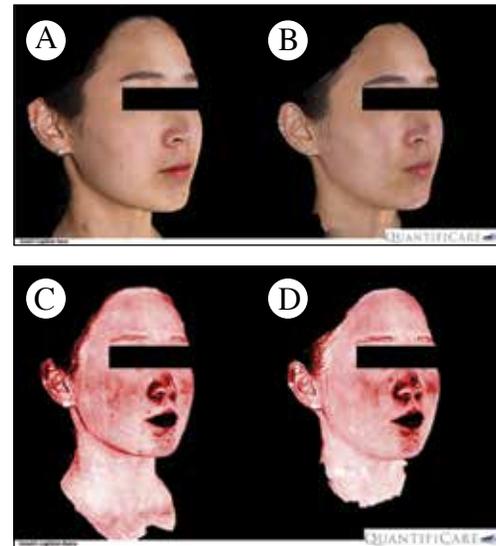


Figure 4. Combined treatment with PICO CARE HEXA-MLA (PICO CARE) and long-pulsed 532 nm KTP (V-laser). A and C before; B and D after the combination laser treatment.

procedure could be resolved faster. Combined treatment with PICO CARE HEXA-MLA and long-pulsed lasers also reduces downtime for patients.

As a long-pulsed laser system, the V-Laser from WonTech features 532 nm KTP and 1064 nm Nd:YAG pulses. Also, the 16 mm sized sapphire cooling window allows for a clear field of vision. Cooling temperatures can be adjusted between 5° – 20° C in accordance with treatment indications, and there are no additional accessories required.

Long-pulsed 532 nm KTP penetrates shallowly into the epidermis, and is ideal for treating epidermal pigmentations and superficial vascular reddish veins, such as telangiectasias and cherry angiomas. The long-pulsed 1064 nm penetrates deeper to treat bluish veins, such as reticular and spider vessels, as well as blue and purple port-wine stains. Furthermore, the device is equipped with Genesis mode which can be used to induce neocollagenesis and skin vitalization effects.

Figure 3 shows a case of skin rejuvenation along the forehead. After PICO CARE HEXA-MLA treatment across the entire forehead, 532 nm KTP was applied on the right side of the patient's forehead via the V-laser device. Through histopathologic examination, the accumulation of red blood cells at the LIOB spots was noted on the side treated only

with PICO CARE HEXA-MLA. On the side additionally treated with the V-laser, the red blood cells appeared purple, indicating a faster healing response. This demonstrates that the long-pulsed 532 nm KTP laser helps to alleviate the petechiae and redness that occurred after the HEXA-MLA treatment, and ultimately reduce a patient's distress or embarrassment in the days following treatment.

Figure 4 demonstrates excellent results of a full-face skin rejuvenation treatment combining PICO CARE HEXA-MLA and V-laser. Dull skin tone, uneven skin texture, fine lines and enlarged pores have all been improved by the HEXA-MLA procedure. Furthermore, petechiae, erythema and diffuse redness have all been improved due to the long-pulsed 532 nm KTP V-laser treatment.

Another highlight of PICO CARE is that it reportedly emits the most accurate 450 nm picosecond shots among the majority of Nd:YAG medium laser systems. Nd:YAG lasers have been found to achieve great results in pigmentation treatment and tattoo removal. Use of the PICO CARE device and the HEXA-MLA handpiece achieves excellent results in scar treatment and skin rejuvenation.

In conclusion, picosecond lasers with a fractional handpiece have widened the range of available indications, from pigmentation removal to skin rejuvenation and scar treatment, demonstrating dramatic effects after just a single session. As well, fractional delivery of laser energy appears to be well suited for the treatment of both atrophic and hypertrophic scars, such as acne scars, chicken pox, etc., and achieves excellent improvement in collagen remodeling for skin rejuvenation. Moreover, additional application of long-pulsed 532 nm KTP laser treatment provides synergistic effects for reduced petechiae and erythema, resulting in greater patient comfort.