

Advanced Treatment of Recalcitrant Nevus of Ota

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Clinical Bulletin



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Clinical and Histologic Features

Nevus of Ota is a congenital or acquired dermal pigmented lesion which appears as a blue or gray hyperpigmented patch on the face. After onset, the lesion may slowly and progressively enlarge and darken in color. It is caused by a benign growth, or entrapment, of dermal melanocytes in the upper third of the dermis. Although very few cases have been associated with life threatening conditions like malignant melanoma, the lesions can be socially and cosmetically debilitating depending on the severity of the pigmentation. Nevus of Ota is a complex and challenging lesion to treat as it may involve epidermal, connective tissue, nervous, or vascular histology. The target chromophore of these nevi is melanin, which is typically treated by selective photothermolysis, surgical removal, grafting or dermabrasion, depending on the depth and location of the nevus.¹

Treatment Paradigm

Traditional nanosecond (ns) lasers are considered standard of care for the removal of benign epidermal and dermal pigmented lesions and tattoos, but they require a high number of treatments and often do not provide complete clearance.^{2,3} With

the introduction of ultra-short picosecond (ps) lasers, removing smaller melanin and tattoo ink particles, particularly those of recalcitrant or plateaued results, has become much more feasible. As particles become smaller, they require shorter pulse durations to effectively match the thermal relaxation time of the target.⁴ Laser systems with picosecond pulse capability mean that the pulse duration is one-hundred times shorter than traditional nanosecond pulses, which can more effectively target smaller particles in the dermis. These attributes have made these lasers the new treatment of choice for plateaued patients with recalcitrant pigmented lesions.

Case History and Treatment

A 46-year old Hispanic female with congenital Nevus of Ota received a series of nine treatments with a Q-switched Alexandrite nanosecond laser. As this series of treatments progressed, the pigment stopped responding. The enlighten™ laser system was used for two subsequent treatments. The settings for all the treatments the patient underwent are presented below in **Table 1**.

Table 1. Laser parameter settings for treatment of Nevus of Ota

	QS-Alexandrite Laser	enlighten Laser	
	Treatments 1-9	Treatment 1	Treatment 2
Wavelength	755 nm	1064 nm	1064 nm
Spot size	4 mm	6 mm	5 mm
Fluence	3.0 - 4.5 J/cm ²	2.1 J/cm ²	3 J/cm ²
Pulse duration	50 ns	750 ps	750 ps

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Figure 1. Comparison photographs before treatment (left) in 2013, post-9 Q-switched alexandrite treatments—hypo pigmentation occurred (middle) on 3/30/2015, and post-2 enlighten treatments (right), on 8/17/2015.

Clinical Outcome

After the two enlighten treatments, the lesion lightened significantly. The recalcitrant pigment responded to the enlighten laser's ultra-short picosecond pulse duration more effectively than the longer-pulsed Q-Switched Alexandrite system. With simple adjustments to the spot size and fluence, Dr. Green was able to customize the patient's treatment parameters to achieve an optimal outcome.

Conclusions

With the complexity and recalcitrance of the Nevus of Ota, Dr. Green used the enlighten laser system because the high performance dual wavelength laser (532 nm/1064 nm) allowed for treatment of a range of lesion layers. Additionally, selectable pulse duration (750 ps/2 ns) allowed for efficient treatment of smaller pigment particles. Overall versatility in power, spot size, and fluence in the enlighten system allowed for effective customization of treatment for this patient, providing her with relief from a lifetime of facial disfigurement.

For more information about enlighten™ visit www.cutera.com.