

Successful Treatment of Nevus of Ota using Nanosecond Q-Switched Nd:YAG Laser

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ABSTRACT: Nevus of Ota is a benign dermal melanocytic condition characterized by unilateral blue-grey facial hyperpigmentation, often associated with cosmetic concern. Laser therapy, particularly the Q-switched Nd:YAG (QSNY) laser, is considered the treatment of choice. We report a case of a 25-year-old woman with Fitzpatrick skin type IV who presented with congenital Nevus of Ota involving the right cheek. She underwent 20 sessions of 1064 nm QSNY laser at 4-week intervals, with progressive lightening observed after each session. Marked clinical improvement was achieved after completion of treatment, with no adverse effects observed. This case demonstrates a favourable outcome with QSNY 1064 nm laser for Nevus of Ota, suggesting that it may be a safe and effective treatment option in similar patients.

Keywords: Nevus of Ota, Q-switched Nd:YAG Laser, Hyperpigmentation, Laser therapy

INTRODUCTION

Nevus of Ota, also known as oculodermal melanocytosis, is a benign dermal melanocytic lesion that typically presents as unilateral blue-grey or slate-blue pigmentation involving the facial skin innervated by the ophthalmic (V1) and maxillary (V2) branches of the trigeminal nerve [1,2]. It is usually congenital, appears in early childhood, and persists throughout life without spontaneous regression. Although benign, it may cause significant psychological distress and cosmetic concern [2].

Laser therapy has become the mainstay of treatment, with Q-switched lasers demonstrating favorable outcomes through selective photothermolysis of dermal melanin [2,3]. Among these, the 1064 nm Q-switched Nd:YAG (QSNY) laser is particularly suitable for patients with darker skin types due to its deeper dermal penetration and lower epidermal melanin absorption [4,5], thereby reducing the risk of pigmentary complications such as post-inflammatory hyperpigmentation and hypopigmentation. This case report describes the successful treatment of

Nevus of Ota using 1064 nm QSNY laser in a patient with Fitzpatrick skin type IV.

CASE PRESENTATION

A 25-year-old woman with Fitzpatrick skin type IV and no known medical illness presented to our clinic with unilateral blue-grey hyperpigmentation over the right cheek. The pigmentation had been present since birth and remained stable over time but caused significant cosmetic concern. Clinical examination revealed diffuse blue-grey macular pigmentation confined to the right malar region (**Figure 1**), consistent with Nevus of Ota. There was no associated ocular or mucosal involvement, and the patient had not received any prior treatment.

MANAGEMENT AND OUTCOME

Written informed consent was obtained from the patient prior to treatment, including consent for the publication of clinical information and photographs. The patient was treated with a 1064 nm QSNY laser (Lutronic Spectra XT, Lutronic Corp-

oration, South Korea) at 4-week intervals. Laser parameters were gradually adjusted based on clinical response and patient tolerance (**Table 1**). A total of 20 treatment sessions were performed.

Progressive lightening of the hyperpigmentation was observed from the fifth session onwards, with marked clinical improvement achieved after completion of the treatment course compared with baseline (**Figure 2**). Treatment outcomes were assessed using the Global Aesthetic Improvement Scale (GAIS), a 5-point scale in which 1 indicates “very much improved” and 5 indicates “worse.” The patient achieved a GAIS score of 1 (“very much improved”) and reported high satisfaction at the end of treatment.

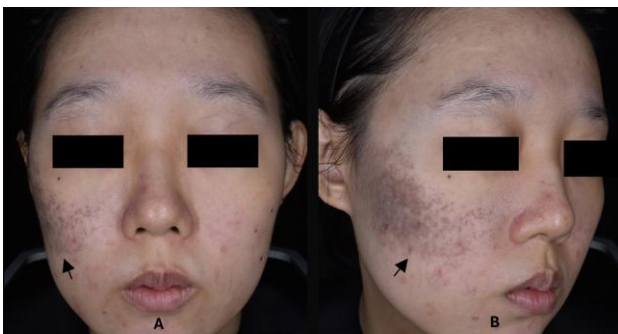


Figure 1. Clinical photographs of the patient at initial presentation showing frontal (**A**) and right lateral (**B**) views. Arrows indicate the Nevus of Ota.

The procedure was well tolerated, with only mild transient erythema observed post-treatment, which resolved spontaneously. No significant adverse effects, including post-inflammatory hyperpigmentation, hypopigmentation, or scarring, were observed during the treatment period. Following completion of the 20-session QSNY laser treatment course, the patient continued with maintenance therapy consisting of monthly QSNY sessions for general skin rejuvenation. Over a 10-month follow-up period, the clinical improvement of Nevus of Ota remained stable, with no evidence of delayed complications such as hypopigmentation or pigment recurrence (**Figure 3**).

Table 1. 1064 nm Q-switched Nd:YAG laser treatment parameters.

| Parameter | Setting |
|-------------------|--|
| Wavelength | 1064 nm |
| Frequency | 5 Hz |
| Spot Size | 4 mm |
| Fluence | Started at 4 J/cm ² and gradually increased to 6 J/cm ² over subsequent sessions |
| Technique | Pulse-stacking for 3–5 seconds |
| Passes | 1–2 passes per session |
| Clinical Endpoint | Appearance of petechiae |

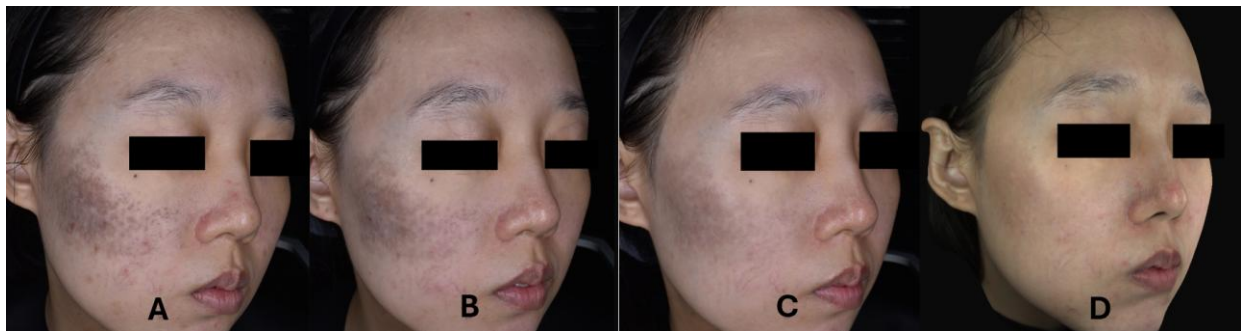


Figure 2. Clinical photographs of the patient showing progressive improvement of Nevus of Ota from baseline (**A**), after 5 sessions (**B**), 10 sessions (**C**), and 20 sessions (**D**) of 1064 nm QSNY laser treatment.

DISCUSSION

Nevus of Ota is characterized by the presence of dermal melanocytes, which produce the characteristic blue-grey discoloration of the affected skin. Treatment options include cryotherapy, dermabrasion, and laser therapy. Among these, the 1064 nm QSNY laser is a recommended treatment modality for Nevus of Ota [6] and has substantial evidence supporting its efficacy in pigment clearance [7].

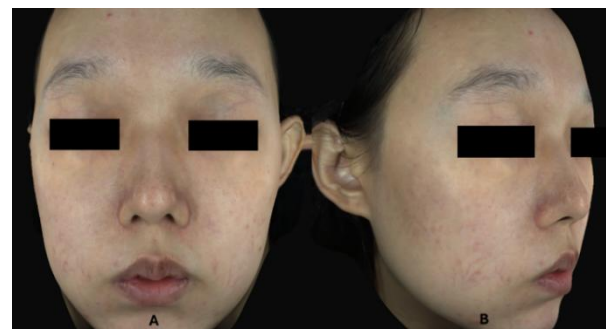


Figure 3. Clinical photographs of the patient at 10-month follow-up showing frontal (**A**) and right lateral (**B**) views. The results remain stable with no pigment recurrence or complications following the maintenance phase.

Published studies on 1064 nm QSNY laser treatment for Nevus of Ota have demonstrated considerable variability in treatment parameters, particularly regarding treatment intervals and the total number of sessions required. Some protocols employ shorter treatment intervals, such as every 2 weeks [3], whereas others utilize longer intervals ranging from 3 months to 1 year [2,8,9] to minimize procedure-related adverse effects, including burning sensations and hyperpigmentation.

In contrast, the present case was managed using 1064 nm QSNY laser treatment administered at fixed 4-week intervals. Marked clinical clearance and high patient satisfaction were achieved following 20 treatment sessions. Progressive pigment clearance was observed throughout the treatment course without significant adverse effects. Furthermore, no treatment-related complications were identified in this patient.

CONCLUSION

This case demonstrates that the 1064 nm QSNY laser may be a safe and effective treatment modality for Nevus of Ota, particularly among local patients. Furthermore, treatment administered at 4-week intervals may achieve effective pigment clearance while maintaining a favorable safety profile. Future prospective studies involving larger patient cohorts are warranted to further evaluate the optimal treatment protocol, long-term safety, and recurrence patterns associated with shorter treatment intervals in patients with Nevus of Ota.

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CONFLICT OF INTEREST

The author declares no conflict of interest.

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