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CASE REPORT

A Single Session of Combined 1064 nm Nd:YAG and 660 nm Ruby Laser–Like Therapy for Long-Standing Facial Solar Lentigines: A Case Study

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ABSTRACT: Solar lentigines are benign hyperpigmented lesions caused by chronic ultraviolet exposure and are a common aesthetic concern, particularly on facial skin. Q-switched lasers are among the principal treatment modality due to their ability to selectively target melanin with minimal downtime and a favorable safety profile. This case reports a 53-year-old Fitzpatrick skin type IV woman who presented with bilateral cheek pigmentation of 30 years' duration and was diagnosed with solar lentigines and concurrent melasma. She underwent a single session of combined 1064 nm Q-switched Nd:YAG (QSNY) laser and 660 nm ruby laser-like modality. Significant improvement was observed at 1-month follow-up without adverse effects. A Global Aesthetic Improvement Scale (GAIS) score of 5 ("very much improved") was recorded. This case highlights the potential effectiveness of a combined wavelength approach in the treatment of solar lentigines, offering an effective and safe treatment option.

Keywords: Solar Lentigines; Fitzpatrick type IV-VI; Q-switched Nd:YAG Laser; 660nm ruby laser-like therapy

INTRODUCTION

Solar lentigines are benign pigmented macules that develop on chronically sun-exposed skin and are among the most common cosmetic concerns encountered in clinical dermatology. These lesions arise from increased melanin production and accumulation within the epidermis, often due to chronic ultraviolet radiation exposure [1].

Over recent decades, various laser modalities have been used to treat solar lentigines with promising clinical outcomes. Q-switched lasers are most commonly employed due to their ability to selectively target melanin, including Q-switched Nd:YAG (QSNY), Q-switched ruby, and Q-switched KTP lasers, all of which have demonstrated significant efficacy in lesion clearance [2]. Among these, the QSNY laser has been most extensively studied, with commonly used wavelengths including 532 nm, 660 nm, and 1064 nm [2].

In this case report, we present a patient with long-standing facial solar lentigines and concurrent melasma treated with a combination of 1064 nm QSNY laser and 660 nm ruby laser-like modality, contributing practical insight into combined laser strategies for pigmentary disorders.

CASE PRESENTATION

A 53-year-old postmenopausal woman with Fitzpatrick skin type IV and no known comorbidities presented with a 30-year history of progressively worsening hyperpigmented lesions over both cheeks, associated with uneven skin tone. She reported significant cumulative sun exposure due to regular participation in outdoor sports since her 30s and had not used sunscreen. There was no

family history of pigmentary disorders, and she had not previously sought dermatological consultation. In 2022, she underwent ablative laser treatment, which resulted in one week of erythema and downtime, with only partial improvement. Subsequently, she developed increased photosensitivity, which limited her tolerance to sunlight and negatively affected her outdoor activities. She had not used any topical treatments for her pigmentation.

On physical examination, multiple well-defined, round, flat, brown macules were observed over the right cheek and left lateral cheek, without associated telangiectasia. In contrast, the left anterior cheek demonstrated an ill-defined, oval, light brown patch with underlying telangiectasia. Additional ill-defined hyperpigmented patches were also noted over both lateral cheeks. Based on the clinical history and examination findings, a diagnosis of solar lentigines with concurrent melasma was made. Dermoscopic evaluation of the lesions was not performed.

MANAGEMENT AND OUTCOME

Written informed consent was obtained from the patient prior to treatment. The patient underwent a single session of depigmentation therapy using a 1064 nm QSNY laser (Cynosure Lutronic, Lutronic Corporation, South Korea) and a 660 nm ruby laser-like modality (RuVY Touch, Cynosure Lutronic, Lutronic Corporation, South Korea). The 1064 nm QSNY laser was delivered at a low fluence of 0.75 J/cm^2, a frequency of 10 Hz, and a spot size of 8 mm, with three passes over the full face (approximately 4,000 shots). In addition, the 660 nm ruby laser-like modality was applied to the solar lentigines at a fluence of 0.75 J/cm^2, using a 3-mm spot size with a single stacking pass. No adjunctive topical or systemic therapies were prescribed during or after treatment.

At 1-month follow-up, marked improvement in solar lentigines was observed (**Figures 1** and **2**). Treatment response was assessed using the Global Aesthetic Improvement Scale (GAIS), a 5-point scale ranging from 1 (worse) to 5 (very much improved). The patient achieved a GAIS score of 5, indicating very much improved appearance compared with baseline. No post-treatment downtime, erythema, or pruritus upon sun exposure was reported, in contrast to her prior experience with ablative laser therapy. The patient expressed high satisfaction with the outcome, noting substantial reduction in pigmentation after a single treatment session, which contributed to improved confidence and quality of life. Further treatment sessions at monthly intervals were planned to address residual pigmentation.

DISCUSSION

Solar lentigo is a common epidermal hyperpigmented lesion that typically manifests in sun-exposed areas. Although benign, these lesions may cause cosmetic disfigurement and negatively affect quality of life, thereby prompting treatment [3]. Various treatment modalities are available for solar lentigines, including topical agents, cryotherapy, chemical peels, and laser therapy. Among monotherapies, laser treatment has demonstrated superior efficacy with a favorable safety profile in the management of solar lentigines [2]. In the present case, a combination of low-fluence 1064 nm QSNY laser and 660 nm ruby laser-like modality was used. Marked pigment clearance was achieved after a single treatment session without downtime or adverse effects.

Previous studies have demonstrated the efficacy of QSNY laser at wavelengths of 532 nm, 660 nm, and 1064 nm in the treatment of solar lentigines. Noh et al. reported that both 532 nm and 660 nm QSNY laser were effective for treating lentigines in patients with darker skin types [4]. Similarly, Kaminaka et al. demonstrated that more than 50% pigment clearance was achieved after 10 weekly sessions of low-fluence 1064 nm QSNY laser treatment in 50.0% of patients with melasma and 62.5% of patients with solar lentigines [5]. Nam et al. further reported marked to near-total improvement in 58.3% of patients with solar lentigines following several sessions of low-fluence 1064 nm QSNY laser treatment using an 8-mm spot size and fluence ranging from 0.8 to 2.0 J/cm^2 [6]. Similarly, the present case utilized a 1064 nm QSNY laser with an 8-mm spot size. However, a lower fluence of 0.75 J/cm^2 was delivered in a single treatment session while still achieving marked pigment clearance.

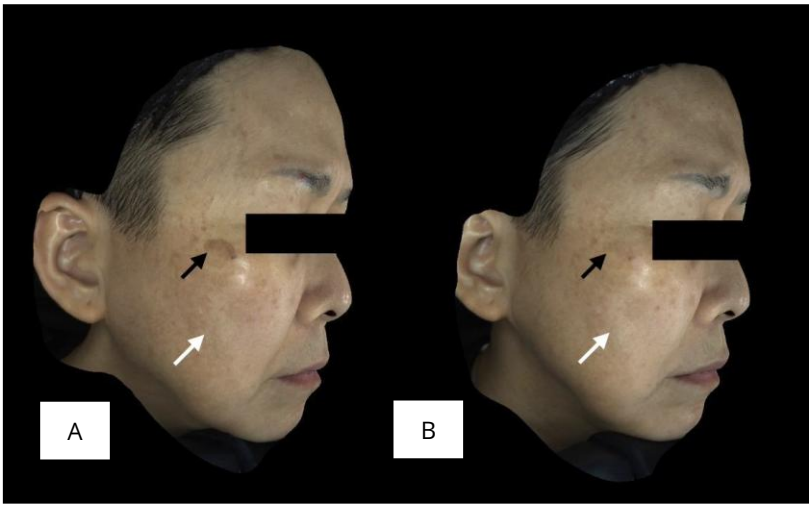

Figure 1. Clinical photographs of the patient at baseline **(A)** and 1-month post-treatment **(B)**, showing improvement in right cheek solar lentigines (black arrows) and melasma (white arrow).

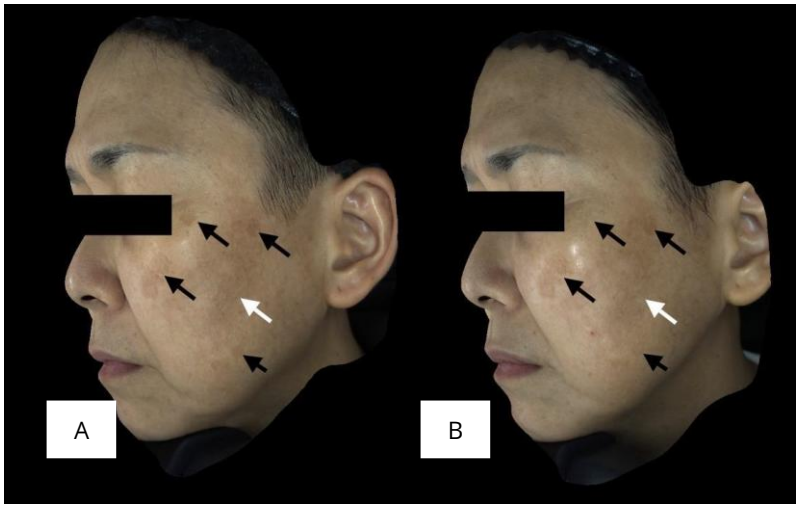

Figure 2. Clinical photographs of the patient at baseline **(A)** and 1-month post-treatment **(B)**, showing improvement in left cheek solar lentigines (black arrows) and melasma (white arrow).

In addition, combination laser approaches may further enhance treatment efficacy. Bohnert et al. demonstrated that combined 532 nm and1064 nm QSNY laser treatment was superior to 1064 nm QSNY laser monotherapy in improving the appearance of solar lentigines [7]. This may be attributed to the different penetration depths and melanin absorption characteristics of the two wavelengths, allowing simultaneous targeting of both superficial epidermal pigmentation and deeper dermal melanin deposits. The 1064 nm wavelength penetrates deeper into the dermis, thereby enabling fragmentation of deeper melanin deposits while also promoting collagen stimulation. In contrast, the 532 nm wavelength preferentially targets superficial epidermal pigmentation because of its higher melanin absorption coefficient [7]. Similarly, the combination of 1064 nm QSNY laser and 660 nm ruby laser–like modality used in the present case may have facilitated the targeting of pigment at both superficial and deeper dermal levels, contributing to the favorable clinical outcome observed.

CONCLUSION

This case demonstrates that the combination of a 1064 nm QSNY laser and a 660 nm ruby-like laser modality may serve as an effective and well-tolerated treatment for long-standing facial solar lentigines with concurrent melasma in a patient with Fitzpatrick skin type IV. Notably, significant clinical improvement was observed after a single treatment session, without post-treatment downtime or adverse effects. Nevertheless, further studies involving larger patient cohorts are warranted to establish optimal treatment parameters, evaluate long-term efficacy, and determine recurrence rates using objective outcome measures.

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CONFLICT OF INTEREST

The author declares no conflict of interest related to the publication of this paper.

REFERENCES

1. Cardinali G, Kovacs D, Picardo M. Mechanisms underlying post-inflammatory hyperpigmentation: lessons from solar lentigo. Annales de Dermatologie et de Vénéréologie. 2012;139 (Suppl 4):S148-52. DOI:10.1016/S0151-9638(12)70127-8
2. Mardani G, Nasiri MJ, Namazi N, Farshchian M, Abdollahimajd F. Treatment of solar lentigines: a systematic review of clinical trials. Journal of Cosmetic Dermatology. 2025;24(4):e70133. DOI:10.1111/jocd.70133
3. Todd MM, Rallis TM, Gerwels JW, Hata TR. A comparison of 3 lasers and liquid nitrogen in the treatment of solar lentigines: a randomized, controlled, comparative trial. Archives of Dermatology. 2000;136(7):841-6. DOI:10.1001/archderm.136.7.841
4. Noh TK, Chung BY, Yeo UC, Chang S, Lee MW, Chang SE. Q-switched 660-nm versus 532-nm Nd:YAG laser for the treatment for facial lentigines in Asian patients: a prospective, randomized, double-blinded, split-face comparison pilot study. Dermatologic Surgery. 2015;41(12):1389-95. DOI:10.1097/DSS.0000000000000493
5. Kaminaka C, Furukawa F, Yamamoto Y. The clinical and histological effect of a low-fluence Q-switched 1,064-nm neodymium: yttrium-aluminum-garnet laser for the treatment of melasma and solar lentigenes in Asians: prospective, randomized, and split-face comparative study. Dermatologic Surgery. 2017;43(9):1120–33. DOI:10.1097/DSS.0000000000001120
6. Nam JH, Kim HS, Lee GY, Kim WS. Beneficial effect of low fluence 1,064 nm q-switched neodymium:yttrium-aluminum-garnet laser in the treatment of senile lentigo. Annals of Dermatology. 2017;29(4):427-32. DOI:10.5021/ad.2017.29.4.427
7. Bohnert K, Dorizas A, Sadick N. A prospective, randomized, double-blinded, split-face pilot study comparing Q-switched 1064-nm Nd:YAG versus 532-nm Nd:YAG laser for the treatment of solar lentigines. Journal of Cosmetic and Laser Therapy. 2018;20(7-8):395–7. DOI:10.1080/14764172.2018.1439968