BILATERAL NAEVUS OF OTA SUCCESSFULLY TREATED WITH A Q-SWITCHED ND:YAG 1064 LASER WITH A REVIEW OF THE LITERATURE

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Kristine Heidemeyer, Nathalie Dietrich , Nathalie Irla , Helmut Beltraminelli, Luca Borrador, Maurice Adatto
Department of Dermatology, Inselspital, Bern University Hospital and University of Bern, Bern, Switzerland

Corresponding author:
Kristine Heidemeyer
Department of Dermatology, Inselspital, Bern University Hospital and University of Bern, Bern, Switzerland
Tel.: +41 (0)31 632 21 11
Email: kristine.heidemeyer@insel.ch

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Abstract

Background: Naevus of Ota, also called naevus fusculo-coeruleus ophthalmomaxillaris, belongs to the group of dermal melanocytoses. It typically occurs in the Asian population, and it is extremely rare in Caucasians. The management of naevus of Ota has been challenging.

Observation: We report a Caucasian patient presenting with a bilateral naevus of Ota which was successfully treated using a Q-Switched (QS) Nd: YAG 1064 laser. We further review the various available therapeutic options as well as the results obtained with various laser types, including the QS Nd: YAG 1064 and 532 nm, the QS ruby 694 nm and the QS alexandrite 755 nm lasers.

Conclusion: Based on the remarkable clinical improvement observed in our case and previous reports, Q-Switched lasers currently represent the treatment of choice for the naevus of Ota. Development of picosecond technology in laser medicine has opened a new perspective for the treatment of Ota.

Introduction

The naevus of Ota, also called naevus fusculo-coeruleus ophthalmomaxillaris or oculodermal melanocytosis, is a dermal naevus first described in 1939 by Ota in Japan (1-3). This entity is characterized by the presence of a localized blue-black or grey-brown, patchy pigmentation of the face, affecting predominantly the periorbital region. Pigmentation is already found at birth in about 60% of cases, whereas in the other cases it usually develops during childhood or adolescence (1). As for Mongolian spots, the naevus of Ota is more frequent among Asians than in other populations (2). It can be associated with other melanocytic lesions occurring in the sclera and conjunctiva, tympanic membrane, oral and intranasal mucosa, as well as leptomeninges (3).

In the past, a variety of therapeutic approaches have been tried with inconstant results (4-8). Management of naevus of Ota has now become easier with the development of new laser technologies. We here describe a case of a bilateral naevus of Ota in a Caucasian male, which was successfully treated by QS Nd: YAG 1064 nm laser.

Case report

A 21-year-old Caucasian man was referred for evaluation of a large pigmented lesion in the upper part of the face, which was noted for the first time at the age of three. The patient was otherwise in good general condition and his past medical
history and drug intake were unremarkable. The clinical examination showed a blue-black patchy pigmentation distributed periorbitally and on both temple regions (Figures 1, 3, 5). There was also bilateral ocular involvement with a bluish pigmentation of the episclera. There were no other aberrant pigmentations of the tympanic membrane, or the nasal or oral mucosa. Ocular examination, including fundoscopy, revealed no sign of either intraocular hyperpigmentation or vascular anomalies.

Based on the clinical findings typical for a naevus of Ota, we initiated QS Nd-YAG 1064 nm laser treatment (MedLite C6, Cynosure, Westford, MA, USA). During the treatment of eyelids, intraocular laser corneal eye-shields protection (Cox II, Oculoplastik, Montreal, Canada) was used after corneal anesthesia. On the forehead, seven sessions have been performed (spot size 3-6 mm, fluence 1.8-7.9 J/cm²), whereas the eyelids were treated within six sessions (3-4 mm spot size, 2.3-6.5 J/cm²). No significant side-effect except for a mild crusting, observed for 2-3 days, was noted during therapy. Post-treatment procedures included application of a cream containing fusidic acid. We observed a remarkable reduction of the pig-
mentation, which was maintained at the six-month follow up visit (Figures 2, 4, 6).

Discussion

Naevus of Ota belongs to the group of dermal melanocytoses, encompassing both congenital and acquired melanocytic lesions with an overlap in histopathological findings. Dermal melanocytoses, which are defined by the presence of intradermal melanocytes, include blue naevus, Mongolian spot, naevus of Ota, naevus of Ito, as well as acquired bilateral naevus of Ota-like macules (ABNOM) (9).

The estimated incidence of naevus of Ota is 0.2-1% in Japan, with a male-female ratio of 1:4.8 (3). In contrast, in the European population, this entity remains very rare. Furthermore, albeit in Japanese patients the naevus of Ota occurs bilaterally in up to 10% of cases (3), in Caucasians bilateral involvement is extremely rare. Since the first report of Kolde et al, there have been only five additional case reports of bilateral naevus Ota in the Caucasian population (10-14).

In Asian patients, the bilateral naevus of Ota has to be distinguished from the acquired bilateral naevus of Ota-like macules (ABNOM) (15), also called Hori naevus. The latter is an acquired dermal facial melanocytoses mostly observed in Asian women and in people with dark skin after the third decade of life (16, 17). The features of ABNOM are peculiar with small, bilateral, blue-brown, gray patches located preferentially on the malar regions or less frequently on the forehead, upper eyelids, cheeks and nose. It may be further associated with Sturge-Weber syndrome, glaucoma, and rarely ocular melanoma (18-20).

Naevus of Ota generally shows a benign course. Nevertheless, affected patients appear to be at increased risk for the development of melanoma, particularly of the uvea (21). The condition almost invariably results in esthetic discomfort and embarrassment for the patients. In the past, its treatment was often challenging, since the options were limited (Table 1). Dermabrasion, cryotherapy, surgical procedures such as skin grafting and cosmetic tattoo have been tried with variable and unpredictable response (4, 22). Poor aesthetic outcomes and serious side effects were observed. These included hypopigmentation or scarring after cryotherapy, alteration of the skin structure or recurrence of the lesions after skin grafts (22).

The development of Q-switched lasers has recently significantly facilitated the management of naevus of Ota. The QS Nd: YAG 1064 and 532 nm (frequency-doubled), QS ruby 694 nm and QS alexandrite 755 nm laser have been described to significantly improve the skin pigmentation associated with the naevus of Ota. Specifically, the results obtained using the QS Nd: YAG and QS alexandrite lasers are remarkable, with almost

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<thead>
<tr>
<th>Laser type</th>
<th>Comments</th>
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<tbody>
<tr>
<td>QS Nd: YAG 1064</td>
<td>Good improvement, 96.8% near total</td>
<td>(28, 29)</td>
</tr>
<tr>
<td></td>
<td>improvement with low fluence</td>
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<tr>
<td>QS Nd: YAG 532</td>
<td>Near complete clearance</td>
<td>(31)</td>
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<tr>
<td>QS ruby</td>
<td>&gt; 75% clearance in 2-11 treatment sessions</td>
<td>(32)</td>
</tr>
<tr>
<td>QS alexandrite 755</td>
<td>&gt; 90% complete clearance</td>
<td>(33)</td>
</tr>
<tr>
<td>Argon and QS Nd: YAG 1064</td>
<td>Satisfactory fading</td>
<td>(34)</td>
</tr>
<tr>
<td>Candela pdll and pdl</td>
<td>&gt; 80% improvement</td>
<td>(35)</td>
</tr>
<tr>
<td>Fractional Nd: YAG 1440</td>
<td>Clearance</td>
<td>(36)</td>
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<tr>
<td>QS Nd-YAG 1064 and fractional erbi</td>
<td>Neart complete or complete clearance</td>
<td>(37)</td>
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<tr>
<td>1550</td>
<td></td>
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<tr>
<td>QS Ruby and CO2 laser</td>
<td>98% excellent result</td>
<td>(38)</td>
</tr>
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</table>

**Table 2.** Survey of various lasers used for the treatment of naevus of Ota
complete responses (23, 24). While one report did not find any difference in efficacy (25), other studies provided some evidence indicating that QS ruby laser was more efficient than QS Nd:YAG 1064 and 532 (26, 27). A new approach with Ota naevus is to start treatment at an early age (before the age of 10), which allows to use lower fluences of QS laser, reducing the potential side effects. Starting early in life seems also to require less sessions to obtain a significant improvement (28, 29).

In our case, we used standard parameters as the patient was an adult. Development of picosecond technology has opened new possibilities for the treatment of Naevus Ota. Moreover, in non-responders to QS lasers, the picosecond alexandrite 755 laser may lead to an improvement already within two sessions (30). In conclusion, QS lasers represent an efficient and safe therapeutic option for the management of naevus of Ota.

Conflicts of interest: none declared.
Acknowledgements: none declared.

Bibliography