LETTER TO THE EDITOR

Picosecond alexandrite laser for Naevus of Ota treatment in Chinese

To the Editor

Naevus of Ota, also known as naevus fusco-caeruleus ophthalmo-maxillaris, is a benign dermal melanocytosis that typically affects the Asians. The patients experience psychosocial distress related to disfigurement and often seek for treatments. Q-switched lasers have demonstrated positive clinical results.[1] However, there are still lesions that were not completely resolved or the treatment resulted in intolerable side-effects that made patients and physicians disappointed.[2] Picosecond lasers have been commercially available since 2013, and clinical studies have shown the safety and efficacy in treating multicoloured and refractory tattoos.[3] However, the efficacy and safety of picosecond laser are not yet elucidated for the treatment of naevus of Ota.

We performed a retrospective review to evaluate the efficacy and safety in treating naevus of Ota in Chinese using a picosecond alexandrite laser (PSAL). A total of 29 patients (seven males, 22 females) with naevus of Ota from October 2015 to December 2016 were included in this study. The data were collected, including the age at onset, age at treatment, colour, the location of lesions, treatment procedures, outcomes and follow-ups. Clinical photographs were taken before each session and at each subsequent visit to evaluate the efficacy. Clinical improvement and adverse events were assessed independently by two dermatologists. A five-point grading scale, complete clearance 95%–100%, excellent 75%–94%, good 50%–74%, fair 25%–49%, minimal 0%–24%, was used for the evaluation of lesion clearance.

All subjects were Fitzpatrick skin type III or IV. The age of onset ranged from birth to 28 years old and the mean age was 7.9 years old, and the patients' age at treatment ranged from newborn to 48 years old. The lesion locations included the forehead, cheek, zygomatic, temporal region, upper/lower eyelid and nasal ala. The lesion distribution of one case was bilateral, and the others were unilateral. A total of nine patients had brown lesions, 16 patients had brown-blue and four had blue lesions. The treatment parameters were pulse duration of 750 ps, spot sizes of 2-4 mm and fluence of 1.95-6.37J/cm^2. Patients underwent a range from one to five treatments. After one treatment, more than 75% clearance was achieved in eight patients, 50%–74% clearance in five patients and less than 50% in 16 patients. After a single treatment, the cure rate was 20.7% while the effective rate was 44.8%. Six of 15 patients who received two sessions and two of five patients who received three sessions achieved more than 75% clearance. Two cases are showed as follows (Figs 1 and 2). Temporary responses including erythema, mild oedema and some crusting were observed. Two patients with hyperpigmentation after treatment were observed and were gradually resolved in 6 months.

It has been hypothesized that picosecond pulses can induce almost instantaneous heating and micro-fragmentation of chromophores in the skin with much less thermal damage to adjacent tissue than the nanosecond pulsed lasers.[4,5] Chestnut *et al.* reported the successful application of PSAL in treating three patients with refractory naevus of Ota whom experienced plateau in the treatment response to Q-switched lasers.[2] All treated lesions showed significant lightening and cosmetic improvement after two or fewer treatments.[2] Levin *et al.* and Chan *et al.*

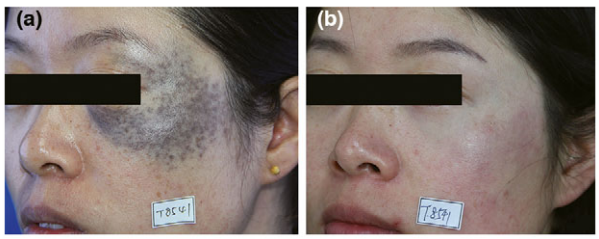

Figure 1 A 30-year-old woman with naevus of Ota on left side of face. A, Baseline; B, 5 months after four sessions (clearance score: complete); The treatment parameters: 755 nm, 750 ps, 5.26–6.37 J/cm^2, 2–2.2 mm.

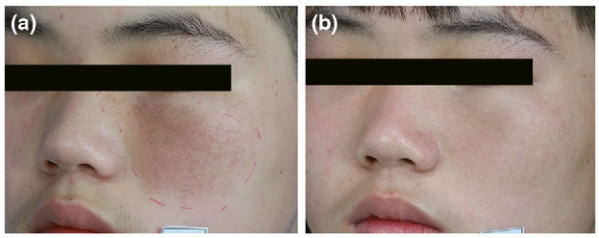

Figure 2 A 13-year-old child with naevus of Ota on left side of face. A, Baseline; B, 3 months after one session (clearance score: complete); The treatment parameters: 755 nm, 750 ps, 5.26 J/cm^2, 2.2 mm.

© 2018 European Academy of Dermatology and Venereology

reported the successful application of PSAL for the treatment of naevus of Ota.[6,7] It was observed that fewer treatment sessions were required by PSAL to achieve comparable clinical efficacy compared with Q-switched lasers.[6,7] Our results also suggested that PSAL is an effective and safe treatment approach for naevus of Ota in Chinese patients. The clinical outcomes were promising but further research is necessary. There was a lack of a control group, and the study was limited by its retrospective nature. Prospective controlled clinical trials are in need to confirm our findings and establish the true potential of picosecond lasers in the treatment of naevus of Ota.

Supported by CAMS Innovation Fund for Medical Sciences (No. CIFMS-2017-I2M-1-017) and Key R&D Plans of Jiangsu Province (No. BE2017808).

L. Peng, Y. Yang, Y.P. Ge, T. Lin*
Cosmetic Lasers, Institute of Dermatology, Chinese Academy of Medical Sciences and Peking Union Medical College, 14 Jiangwangmiao Street, Nanjing, China
*Correspondence: T. Lin. E-mail: ddlin@hotmail.com

References

1 Shah VV, Bray FN, Aldahan AS *et al.* Lasers and nevus of Ota: a comprehensive review. *Lasers Med Sci* 2016; **31**: 179–185.
2 Chesnut C, Diehl J, Lask G. Treatment of nevus of Ota with a picosecond 755-nm alexandrite laser. *Dermatol Surg* 2015; **41**: 508–510.
3 Brauer JA, Reddy KK, Anolik R *et al.* Successful and rapid treatment of blue and green tattoo pigment with a novel picosecond laser. *Arch Dermatol* 2012; **148**: 820–823.
4 Ross V, Naseef G, Lin G *et al.* Comparison of responses of tattoos to picosecond and nanosecond Q-switched neodymium: YAG lasers. *Arch Dermatol* 1998; **134**: 167–171.
5 Ho DD, London R, Zimmerman GB, Young DA. Laser-tattoo removal–a study of the mechanism and the optimal treatment strategy via computer simulations. *Lasers Surg Med* 2002; **30**: 389–397.
6 Chan JC, Shek SY, Kono T, Yeung CK, Chan HH. A retrospective analysis on the management of pigmented lesions using a picosecond 755-nm alexandrite laser in Asians. *Lasers Surg Med* 2016; **48**: 23–29.
7 Levin MK, Ng E, Bae YS, Brauer JA, Geronemus RG. Treatment of pigmentary disorders in patients with skin of color with a novel 755 nm picosecond, Q-switched ruby, and Q-switched Nd:YAG nanosecond lasers: a retrospective photographic review. *Lasers Surg Med* 2016; **48**: 181–187.

DOI: 10.1111/jdv.14810

© 2018 European Academy of Dermatology and Venereology