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Successful and quick treatment of nevus of Ota with 755nm picosecond laser in Chinese

Binping Luo, Liyang Kang, and Jianyun Lu

Department of Dermatology, Third Xingya Hospital, Central South University, Changsha, Hunan, China

ABSTRACT

Nevus of Ota, also known as nevus fusco-caeruleus ophthalmo-maxillaris, is a benign dermal melanocytosis. In the past, this disease was usually treated by Q-switched laser therapy, but the course of treatment was relatively long. In recent years, it has been reported that 755nm picosecond laser, which was firstly reported to treat tattoos, is also effective in the treatment of nevus of Ota. Here, we report six cases of nevus of Ota which were treated with 755nm picosecond laser in Chinese people. We find amazingly that these lesions almost disappeared after only one or two sessions of treatment.

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KEYWORDS
755nm picosecond laser; nevus of Ota; treatment

Introduction

Nevus of Ota, also known as nevus fusco-caeruleus ophthalmo-maxillaris, is a benign dermal melanocytosis (1). In the past, this disease was usually treated by Q-switched laser therapy (2). Here, we reported a series of six Chinese patients of nevus of Ota with a treatment of 755nm picosecond laser.

Methods

All patients had their histories collected, and informed consent was obtained. Five percent compound lidocaine cream was applied topically 60 min before laser treatment. And nothing else other than topical anesthesia was used. For eye protection of these children, we usually had two or three staff keeping them stable, one staff hold children's head, and covered children's eyes with gauze. A 755nm alexandrite picosecond laser (Cynosure, Westford, MA) was used in our treatment. And the laser parameter was fluence as 2.49 to 3.25 J/cm2 (3.2 and 2.8 mm spot sizes, respectively) and pulse duration as 750 picosecond. The endpoint achieved with treatment was a little whitening. Ice towels were applied to the treated area immediately for cold compress for about 30–40 min. A slight erythema and edema appeared with a remission of 2–3 days.

Results

Case 1 was an one-year-old boy, with a lesion on his right cheek. After 6 months of one treatment, the lesion got a complete resolution (Figure 1a,b). Case 2 was a one-year-old girl, and her lesion was on both of her left and right forehead, temple, malar cheek and lower eyelid. After 15 months of one treatment, her lesion responded excellent to laser therapy (Figure 1c–f). Case 3 was a five-year-old girl, with a lesion on her left cheek, left lower eyelid and both of her nasal sidewall. After 7 months of two treatments, her lesion was resolved (Figure 2a–d). Case 4 was a one-and-a-half years old girl, with a lesion on her left lower eyelid and cheek. After 6 months of one treatment, her lesion was resolved (Figure 2e,f). Case 5 was a nineteen-year-old girl, with a lesion on her right lower eyelid. After 6 months of one treatment, her lesion was faded (Figure 2g,h). Case 6 was a seventeen-year-old boy, with a lesion on his left temple and malar cheek. After 3 months of one treatment, his lesion was faded (Figure 3a,b).

There was one case (case 1) reported post-inflammatory hypopigmentation. A small amount of vesicles appeared 1 day after laser treatment. Topical antibiotic ointment was used. After a week, the thin scab fell off, hypopigmentation appeared. But the post-inflammatory hypopigmentation did not last long and it recovered completely in 2 months. And no other severe side effect was reported.

There was no recurrence observed in our six cases until now. Our following-up time ranged from 11 to 25 months after the last treatment.

Discussion

Picosecond laser was firstly reported to be effective in tattoo removal by Ross and colleagues in the 1990 s (3). Since then, more and more reports suggested that it had a quick clearance in tattoo removal, especially for blue-green tattoos (4,5). It is reported that picosecond laser is more than twice as effective in for the removal of black-pigmented tattoos, and several times more effective in the removal of multi-colored tattoos than Q-switch nanosecond laser (6). In recent years, it has been reported to be used to treat nevus of Ota (7,8). Chesnut C et al. reported that picosecond 755nm alexandrite laser had significant improvement in recalcitrant lesions over 2 or fewer Treatments (9). Lin T et al. also suggested 755nm picosecond laser as an effective and safe

CONTACT Jianyun Lu xiaoyun3@csu.edu.cn Department of Dermatology, Third Xiangya Hospital, Central South University, 138 Tongzipo Road, Changsha, Hunan 410013, China

Figure 1. Case 1 before treatment (a); case 1 six months after one treatment (b); case 2 before treatment (c) (d); case 2 fifteen months after one treatment (e) (f).

Figure 2. Case 3 before treatment (a)(b); case 3 seven months after two treatments (c)(d); case 4 before treatment (e); case 4 six months after one treatment (f); case 5 before treatment (g); case 5 six months after one treatment (h).

treatment approach for nevus of Ota in Chinese patients, and it demonstrated better clinical results and fewer adverse events than QSAL in the treatment of nevus of Ota (10,11).

We began to treat nevus of Ota with 755nm picosecond laser in our department since 2017, which is one of the first few hospitals that applied this laser therapy in a clinic in China. Before that, we used to treat nevus of Ota with Q-switch Nd:YAG nanosecond laser or Q-switch Ruby nanosecond laser. But many times of treatment were needed before lesion completely resolved.

In our above-reported cases, we can see that only one or two times of picosecond laser treatment can achieve good results. It is a difficult effect to achieve when we used Q-switch Nd:YAG nanosecond laser or Q-switch Ruby nanosecond laser to treat this disease before. Kar HK reported 50 patients of nevus of Ota were treated with Q-switch Nd:YAG laser with an average of five sessions of laser treatment (12). It is worth noting that the blue-brown lesion on patients' faces and many times of experience of treatment may leave them, especially children patients, a negative psychologic impact. It

Figure 3. Case 6 before treatment (a); case 6 three months after one treatment (b).

is undoubtedly a great blessing for them, because picosecond has an advantage in young children due to the decreased number of treatments needed. It means less treatment sessions with a better result. And it is really a big step forward for the treatment of nevus of Ota.

Of course, our cases do not include large areas and dark-colored lesions of nevus of Ota. Perhaps such lesions may require more than one or two times of treatment. And our follow-up time is not long enough. We need to observe more patients and long-term effect of 755nm picosecond laser on nevus of Ota, and collect more objective data by inviting patients to score the degree of treatment pain by a visual analog scale to see whether actual discomfort is less with the picosecond laser in our further study.

In general, we can see from our cases that 755nm picosecond laser is really a good choice for the treatment of nevus of Ota.

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