

## Aesthetic Correction of Smoker's Lip Using 1064 nm Q-switched Neodymium-doped Yttrium Aluminium Garnet Laser

Dear Editor,

Smoking-related lip pigmentation is a common cosmetic concern, both among smokers and even in people who have quit smoking for a long time. Tobacco-associated melanin pigmentation also known as smoker's melanosis has been reported in 22% of smokers and is dose dependent.<sup>[1]</sup> Polycyclic amines such as nicotine and benzopyrenes, present in tobacco, can activate the melanocytes to produce melanin, perhaps as a protective adaptation of oral mucosa against tobacco agents, leading to hyperpigmentation.<sup>[2]</sup> It presents as a diffuse black-brown macule that can involve gingiva, followed by buccal mucosa, lips and hard palate. Here, we report a case of lip pigmentation in a chronic smoker, which cleared after single session of 1064 nm Q-switched neodymium-doped yttrium aluminium garnet (NdYAG) laser treatment.

A 32-year-old male with chief complaint of dark-coloured lips made the request for elimination of the pigmentation for aesthetic reasons. He reported noticing darkening of the lips for over 3 years, mainly in the lower lip. The patient denied taking any medication or any other dark pigmentation in other locations. He had stopped smoking a year before the consultation although he had smoked 25 cigarettes per day for more than 6 years. On examination, multiple black-brown macules measuring 1 cm × 1 cm were detected over both lips but predominantly over the lower lip [Figure 1a]. Baseline investigations performed showed normal results. A diagnosis of smoker's melanosis was given based on the smoking history and the absence of any abnormalities in investigations. A 1064 nm Q-switched NdYAG laser treatment for the lip was proposed. It was performed under topical anaesthesia cream. 500 mJ/pulse energy with pulse duration of 20 nanoseconds was delivered using 3 mm spot size at 2 Hz pulse repetition. Sunscreen was advised. On the second visit after 4 weeks, there was a significant clearance of pigmentation and the patient was



**Figure 1:** (a) Smoker's melanosis on lips. (b) Clearance of pigmentation after single session of 1064 nm Q-switched neodymium-doped yttrium aluminium garnet laser

satisfied with the treatment [Figure 1b]. He did not report any post-operative pain, swelling or other complications. After 7 months of follow-up, the patient had no symptoms or signs of lip pigmentation.

The term 'smoker's melanosis' was described by Hedin *et al.* in 1977 to characterise a benign limited melanin pigmentation occurring in tobacco smokers.<sup>[3]</sup> Lip pigmentation due to smoking causes aesthetic concern among young individuals, especially hampering their professional life. Techniques such as dermabrasion and cryosurgery tried in smoker's melanosis have been associated with some limitations such as lack of precision, variability in depth of penetration, blistering and scarring. Laser carries an advantage over the other modalities as it targets accurately and provides good visualisation of field. Monteiro *et al.* showed clearance of

gingival smoker's melanosus using carbon dioxide laser vaporization.<sup>[4]</sup> Cho *et al.* have reported clinical improvement as well as complete healing of gingival melanosus using 532 nm Q-switched NdYAG laser.<sup>[5]</sup> A Q-switching technique emits nanosecond laser pulses by sudden releasing of the excited-state energy from a laser medium. With a concept of selective photothermolysis, light can create therapeutic effect only at certain targets. This is the first report of using 1064 nm Q-switched NdYAG laser to correct smoker's lip melanosus in a single session. It is a useful, effective and safe method in the removal of the pigmentation of lip in a chronic smoker when tobacco cessation has not improved the appearance. As smoker's lip melanosus is a common aesthetic concern among people, especially after they quit smoking, further studies are needed for a better understanding of the potential benefits of this method.

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### Conflicts of interest

There are no conflicts of interest.

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