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Melasma and low-energy Q-switched laser: treatment assessment by means of in vivo confocal microscopy.

Longo C, Pellacani G, Turlaki A, Galimberti M, Bencini PL.; Lasers Med Sci. 2013 Nov 30.

ABSTRACT

Melasma is an acquired disorder of pigmentation for which several therapeutical options are currently available. Among them, low-energy Q-switched Nd:YAG laser (1,064 nm) has been successfully applied in case series although its long-term efficacy has yet to be proven. In vivo confocal microscopy is a novel imaging technique that permits to explore the skin tissue at a nearly histologic resolution. The aim of our study was to evaluate the laser treatment efficacy by means of confocal microscopy at different time points to elucidate the mechanism of action of the laser and its possible drawbacks. Eight women who presented with melasma on the face were subjected to low-energy Q-switched Nd:YAG laser treatment and then analyzed by means of confocal microscopy. An overall improvement of melasma was noticed clinically and microscopically by means of confocal microscopy. Four cases revealed the presence of dendritic-shaped cells upon confocal microscopy and those patients were the ones presenting with a relapse of the disease. The interpretation of these cells is that they could represent reasonably activated melanocytes. This opens the question whether laser treatment should be modulated to avoid side-effects associated with its use. Confocal microscopy has emerged as an excellent tool for a better understanding of the changes occurring during laser treatment.