



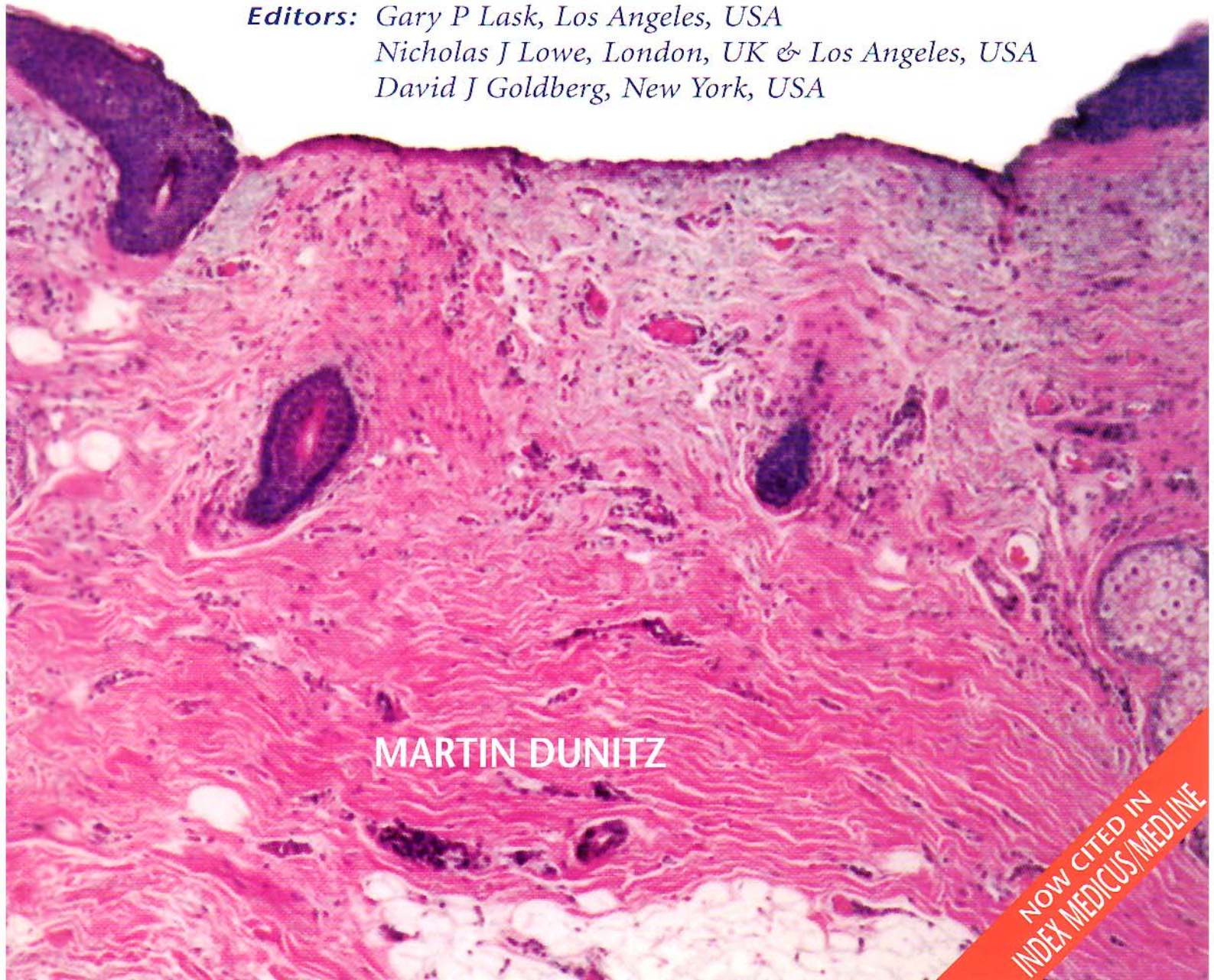
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810 nm, very long pulse, diode laser for the treatment of leg telangiectasia and other vascular malformations

IMCAS – International Master Course on Ageing Skin

M Sanchez Viera, Madrid, Spain

810 diode lasers are being widely used for hair removal, because the 810 nm is absorbed by melanin in hair shaft and matrix cells. The 810 nm wavelength penetrates the skin and is also absorbed by hemoglobin, thus being able to damage the dermal vessels.

We have used a 810, variable pulse, diode laser unit (Multi-diode, Inter medic, Barcelona, Spain) to treat leg telangiectasia, ruby angiomas, venous lakes and other vascular malformations.

Our preliminary data show very promising results in leg telangiectasia and some reticular veins, specially those blue with a diameter from 0.7 to 1.5 mm.

Laser wavelengths used for leg veins include 532, 595–600, 755, 810 and 1064 nm, in addition to pulse light (515–1200 nm).

Curves of hemoglobin absorption on basis to vessel size and deep show a better absorption between 800 to 1000 nm for 1 mm diameter and 1 mm deep vessels. These long wavelengths penetrate deeper into the skin, increasing the likelihood of damage to vessels placed deep into the dermis. Most of the leg telangiectasia and reticular

Pearls from meetings

veins are from 0.3 to 2 mm diameter and are placed deeper than 0.3 mm. In addition, 810 and 1064 nm wavelengths are not completely absorbed by hemoglobin, allowing, theoretically, full thickness vessel penetration and a better treatment of larger than 0.5 and deeper than 0.3 mm vessels.

Fluences higher than 150 J/cm² must be delivered when using the 810 nm wavelength, in order to heat enough of these large and deep vessels, to be damaged. However 810 nm is also absorbed by melanin. To avoid epidermal damage with these high fluences, pulses higher than 100 mseconds are used. With these 'super long' pulses we can use high fluences minimizing epidermal damage. Additionally we protect the epidermis by contact cooling while laser was operating.

Treatment parameters successful for vessels from 0.7 to 1.5 mm diameter ranged from 150–250 J/cm², depending on the deep and the diameter of the vessel, as well as the skin type. Pulse duration were always longer than 100 mseconds. 2 and 3 mm spot hand-pieces were used and we always cooled the epidermis between 80–120°C.

Blue reticular veins and leg telangiectasia up to 1.5 mm were successfully treated. Good results were also obtained when treating venous lakes, ruby angioma and some facial spiders and telangiectasia.

Adverse effects were occasionally seen, including epidermal crusting, blistering, and superficial erosions, specially in tanned skin. Hyper and hypopigmentation were observed in some cases. Most of these complications resolved in 3–4 months.