

Comparison and sequential study of long pulsed Nd:YAG 1,064 nm laser and sclerotherapy in leg telangiectasias treatment

Jean Luc Levy, MD 1 *, Chantal Elbahr 1, Elisabeth Jouve 2, Serge Mordon 3
1Centre Laser Dermatologique, Marseille, France
2CEPCT, Hopital Timone, Marseille , France
3INSERM EA2689, IFR 114, Lille University Hospital, France
email: Jean Luc Levy (laserder@jeanluclevy.com)

*Correspondence to Jean Luc Levy, Centre Laser Dermatologique, 3 Bd Lord Duveen, 13008 Marseille, France.
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ABSTRACT

Background and Objectives

Millisecond pulsed 1,064 nm Nd:YAG lasers have been developed for the treatment of leg telangiectasias. To date there have been very few side by side comparison studies of laser versus the gold standard sclerotherapy in treating small leg veins. This study aims to compare a long pulsed Nd:YAG laser with contact cooling to sclerotherapy for treating small diameter leg telangiectasias by evaluating objective and subjective clinical effects.

Study Design/Patients and Methods

Fourteen patients were selected with leg telangiectasias ranging from 0.5 to 2 mm at four comparable sites. One site was treated with long pulsed Nd:YAG alone, the second received sclerotherapy alone, the third laser then sclerotherapy, and the last one sclerotherapy then laser. The patients were followed up at 3 months after the last treatment. Photographs were taken pre-operatively and at 3 months after the last session. They were used for objective and comparative analysis. Statistical analysis was performed using Friedman's test controlling for subject.

Results

Improvement was tabulated from the photographic assessment on an improvement scale from 0 (no change) to 4 (greater than 75% clearing). There were clinical improvements in the laser group than sclerotherapy without statistical significance. Side effects were minimal and included hyperpigmentation.

Conclusions

This pilot study demonstrates that the Smartepil LS long pulse Nd:YAG 1,064 nm laser can yield results similar to sclerotherapy in the treatment of small leg telangiectasias. Combination of both methods could increase response to treatment. *Lasers Surg. Med.* 34:273-276, 2004. © 2004 Wiley-Liss, Inc.

Optimal pulse durations for the treatment of leg telangiectasias with a neodymium YAG laser

Eric C. Parlette, MD 1, William F. Groff, DO 2, Matthew J. Kinshella 1, Yacov Domankevitz, PhD 3, Jennifer O'Neill, MD 1, E. Victor Ross, MD 1 *

1Dermatology Department, Naval Medical Center, San Diego, San Diego, California
2Dermatology Department, PSC 475, Naval Hospital, Yokosuka, Japan, FPO
3Candela Corporation, 530 Boston Post Road, Wayland, Massachusetts
email: E. Victor Ross (evross@nmcsd.med.navy.mil)

*Correspondence to E. Victor Ross, Naval Hospital, Dermatology Department, San Diego, CA 92134-5000.

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ABSTRACT

Background

Leg veins can be effectively treated with lasers. However, the optimal pulse duration for small leg veins has not been established in human studies with a Nd:YAG laser.

Objectives

The purpose of this study was to investigate a range of pulse durations to determine an optimal pulse duration for clearance of leg veins.

Study Design/Materials and Methods

After mapping and photo documentation of the leg veins to be treated, a variable pulse duration Neodymium:Yttrium Aluminum Garnet (Nd:YAG) laser (3-100 milliseconds) was used in a single test site session. Pulse durations of 3, 20, 40, 60, 80, and 100 milliseconds were used. At the 3-week follow-up, the optimal pulse duration was defined as that pulse duration which resulted in the most complete clearance of vessels with the least side effects. Up to 20 vessels were then treated using the established optimal pulse duration. Final evaluation was at 16 weeks after the initial visit. Three blinded observers rated the percent of vessels completely cleared based on initial and final photographs.

Results

Eighteen patients completed the study. Fluence thresholds for immediate vessel changes varied depending on spot size and vessel diameter, with larger fluences required for smaller spot sizes and smaller vessels. Shorter pulse durations (20 milliseconds) were associated with occasional spot sized purpura and spot sized post-inflammatory hyperpigmentation. Longer pulse durations (40-60 milliseconds) achieved superior vessel

elimination with less post-inflammatory hyperpigmentation. With a single laser treatment, 71% of the treated vessels cleared.

Conclusions

Compared to shorter pulses (<20 milliseconds), longer pulses may provide gentler heating of the vessel and a greater ratio of contraction to thrombosis. *Lasers Surg. Med.* 38:98-105, 2006. © 2005 Wiley-Liss, Inc