



Christine Dierickx, M.D.

Treatment of Bulky Vascular Lesions: Port Wine Stains with Nodules

Christine Dierickx, M.D.

Director, Laser and Skin Clinic
Boom, Belgium

Introduction

Port wine stains (PWS) are the most commonly occurring vascular malformation, affecting approximately 1% of newborns. PWS present as flat, red-to-pink lesions predominately in the head and neck region without sexual predilection. They are caused by densely packed, enlarged capillary blood vessels in the skin. Left untreated or in pronounced cases, PWS can turn darker in color and become hypertrophic. Nodule formation is common.

Treatment of PWS is varied and includes cosmetically concealing makeup, tattooing, surgical excision, and tissue expanders. Most recently, the pulsed dye laser has become the treatment of choice for port wine stains due to treatment ease, efficacy, and a low risk of complications.

But while treatment of PWS has been revolutionized with the development of the pulsed dye laser, PWS that develop into nodular vascular lesions are more difficult to treat. Deeper penetration of the laser energy targeting the blood is required.

This paper reports on the success of using a 755 nm alexandrite wavelength laser, Candela's GentleLASE® laser with the Dynamic Cooling Device™ (DCD™), to treat a port wine stain with nodules.

Method

The subject of this study was a 62-year-old female patient with skin type II. She presented with a purple, nodular PWS on her upper lip. The PWS was treated using a fixed pulsed alexandrite laser at the following treatment parameters: 8 mm spot size, an increasing fluence of 35 to 50 J/cm² with subsequent treatments and DCD cooling at 30 ms and 20 msec delay. Pulses were delivered over the entire affected area with approximately a 5% overlap. A total of three treatments were administered at eight-week intervals.

Results

Before-and-after photography documents a remarkable improvement in both the coloration and protrusion of the lesions. Treatment was performed without any form of anesthesia, and patient discomfort was minimal during treatment. Post-treatment purpura resolved within 10 days. With each subsequent treatment, the color as well as the nodular component of the PWS gradually improved.

Treating PWS with lasers, both short and long wavelength, typically results in purpura being produced. But given the nature of the condition being treated, purpura is usually considered a small price to pay for the eventual clearing of the vascular lesion.



Although rare, other possible side-effects from laser therapy of PWS include blistering, scarring, uneven pigmentation, hypopigmentation of the surrounding normal skin, and infection, if the skin is broken. None of the possibilities were observed in this case.

Discussion

It seems clear that a longer wavelength laser is required to treat thicker vascular lesions in general, and bulky PWS specifically. The depth of penetration of the laser energy seems to be the key, as success in treating nodular vascular lesions has also been reported using Nd:YAG wavelength technology. Whatever blood absorption is lost going from pulsed dye wavelengths (585–595 nm) to an alexandrite or even Nd:YAG wavelengths (755 and 1064 nm, respectively) is probably compensated for by the abundant presence of the targeted chromophore in the more pronounced vascular anomaly.

However, a key advantage of using the GentleLASE alexandrite laser is its DCD cooling system. The GentleLASE laser fires a short burst of cooling cryogen onto the skin prior to every laser pulse, ensuring adequate skin protection, the consistency of treatment, and the maximization of patient comfort.

The GentleLASE laser from Candela is effective in the treatment of bulky vascular lesions and, specifically, nodular port wine stains.



Pretreatment



Post-treatment

Candela Corporation
530 Boston Post Road
Wayland, MA 01778 USA
Phone: (508) 358-7637
Fax: (508) 358-5569
Toll Free: (800) 821-2013
www.candelalaser.com



CANDELA

Treatment parameters are subject to change—please consult your sales representative, clinical consultant, or visit www.mycandela.com to obtain current information regarding the use of your Candela device.

GentleLASE is a registered trademark of Candela Corporation. Dynamic Cooling Device and DCD are trademarks. To find out more about Candela and its products, contact your authorized Candela representative or call toll-free worldwide (800) 821-2013. Dial USA country code if calling internationally.

© 2006 Candela Corporation. All rights reserved. Printed in the USA. 06/06 0920-23-0829 Rev. 02