

Nordlys™
Vascular

IT'S THE ONE

Exacting on veins. Easy on the skin.



Cutaneous vascular lesions encompass a wide range of skin conditions that either originate from or affect vessels (blood and lymphatic).¹ They can occur on almost any part of the body but are especially common on the face or legs. These vascular anomalies may be present at birth or appear at a later age and can be aesthetically disfiguring, as well as having functional implications. Acquired vascular lesions differ from congenital or hereditary vascular lesions in that they manifest months to years after birth.

Vascular Lesions of the Skin Are More Common Than You Think

Varicose veins, telangiectasias, rosacea, port-wine stains (PWS), and hemangiomas can be highly prevalent in the general population. Every year, 40,000 children are born in the United States with congenital vascular lesions and malformations,² while rosacea affects approximately 16 million people.³ Therefore, it is not surprising that treatment of vascular lesions is one of the most requested procedures in cosmetic dermatology and aesthetic practices.

Lasers and non-coherent intense pulsed light (IPL) sources have gained popularity in the treatment of many dermatological conditions, particularly for

vascular lesions, due to their non-invasive nature. The underlying mechanism of lasers and IPL involves the absorption of light energy, at specific wavelengths by intravascular hemoglobin, to selectively heat and destroy abnormal blood vessels within the skin, while minimizing damage to other cutaneous structures.⁴ While lasers emit a single coherent wavelength, IPL uses flashlamps that emit a broad continuous spectrum of light between 400 nm and 1400 nm. By using optical cutoff filters, shorter and longer wavelength portions of the spectrum are blocked. With different filters, hemoglobin, melanin, and water can be selectively targeted at varying degrees and cutaneous depths. This allows treatment of a wide variety of dermatological conditions and skin types. The wavelength range of IPL, which encompasses more than one absorption peak of hemoglobin, and its larger footprint make it an ideal modality for treating vascular disorders and lesions.⁵

Innovations in Treating Vascular Lesions

Narrowband Wavelengths

Although IPL systems typically include wavelengths up to 1200 nm, and even as high as 1400 nm, the Nordlys multi-application platform incorporates risk-minimizing Selective Waveband Technology (SWT®)* IPL technology to focus on wavelengths having a beneficial treatment effect, while blocking potentially harmful wavelengths above 950 nm.^{6, 7} The Nordlys platform has eight (8) SWT handpieces (Table 1) with wavelength ranges cutting off at 720 nm, 750 nm or 950 nm, well below broadband light systems. The wavelengths have high absorption in melanin, or hemoglobin and oxyhemoglobin which can precisely target vascular conditions, such as rosacea, telangiectasia, and PWS.

Also available on the platform is a powerful Nd:YAG laser with 1064 nm wavelength, targeting deeper leg vessels with a diameter of 0.1 mm to 3 mm, as well as two fractional non-ablative skin resurfacing lasers (Frax 1550™ and Frax 1940™ handpieces).^{6,7} Together, there are five SWT and Nd:YAG 1064 nm applicators that are CE-marked in the treatment of vascular conditions. Table 2 outlines conditions treated by applicator.

Sub-millisecond Pulse Durations

In addition to wavelength selection, pulse width (duration) is another factor in treatment success. Very short pulses are optimal for clearing rosacea-associated diffuse redness, but the pulse width of traditional IPL systems is too long to achieve purpura-free coagulation of smaller vessels.⁸ The Nordlys system delivers real sub-millisecond light pulses (as low as 0.5 ms), with high energy, traditionally used by pulsed dye lasers (PDL) for the treatment of very thin vessels.⁹ Figures 1-3 demonstrate impressive results of SWT treatment of port-wine stains (PWS), rosacea, and facial telangiectasias following 3 treatments.

Table 1

Nordlys SWT® IPL Handpieces	Narrowband Wavelength Range
PL 400	400-720 nm
PR 530 & PRS 530	530-750 nm
VL 555 & VLS 555	555-950 nm
HR 600 & HRL 600	600-950 nm
HRD 645	645-950 nm

Handpiece Foot Prints (Spot Sizes)

HR 600, HRD 645, VL 555, PR 530, PL 400 10 mm x 48 mm	HRL 600 18 mm x 48 mm	VLS 555, PRS 530 Hexagonal: 90 mm ²
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Table 2

	Vascular Treatment Applicators (SWT® IPL & Nd:YAG 1064 nm)				
	Nd:YAG	PR 530	PRS 530	VL 555	VLS 555
Skin Rejuvenation**		✗	✗	✗	✗
Telangiectasia	✗	✗	✗	✗	✗
Rosacea		✗	✗	✗	✗
Benign Vascular Lesion	✗	✗	✗	✗	✗
Poikiloderma of Civatte		✗	✗	✗	✗
Port Wine Stains	✗	✗	✗	✗	✗
Leg Veins***	✗				
Venous Lakes	✗				

Skin rejuvenation through treatment of vascular lesions, pigmented lesions and / or skin resurfacing. *Leg vessels 0.1 mm – 3.0 mm diameter

The Nordlys™ Nd:YAG 1064 nm Laser for Extending Vascular Treatment Capabilities

The Nd:YAG laser produces light with a wavelength of 1064 nm that penetrates deep into the skin and enables treatment of larger and deep-seated leg veins.⁹ The long-pulsed Nd:YAG laser also treats PWS, telangiectasias, hemangiomas, and other vascular lesions.¹⁰

For treatment of more difficult or deeper vessels or leg vessels, the Nordlys system offers a long-pulsed Nd:YAG 1064 nm handpiece.⁶ While many smaller vessels on the face respond well to SWT treatment, larger vessels are often located too deep to give optimum results or may be located on the alae nasi and nasal tip, where it is difficult to treat the vessel fully.⁶ The Nordlys Nd:YAG laser offers an alternative modality and has been shown to treat even stubborn telangiectasia on the face.⁹ The Nordlys system automatically calculates the appropriate energy setting, spot size, and pulse duration based on the vessel size (thickness) and color (blue/red). A continuous stream of cool damp air, SoftCool™ cooling, is integrated into the Nd:YAG handpiece and automatically starts at the beginning of the treatment for patient comfort.

Figure 4 demonstrates results of Nordlys system Nd:YAG 1064 nm treatment in leg veins.

An Outstanding Multi-Application Platform to Address Many Skin Concerns

The Nordlys system is uniquely equipped to be a powerful vascularity treatment platform, as well as a valuable tool to address common pigmentary conditions, hair removal, and even podiatric concerns such as clear nail (e.g., onychomycosis). With many of today's patients presenting with both pigmentation and vascular concerns, it is advantageous to address these cosmetic conditions with a single, highly versatile platform.

With its SWT (narrowband IPL technology), non-ablative fractional handpieces for shallow and deep resurfacing, and a Nd:YAG laser to target deeper vessels, the Nordlys multi-application platform is outshining in treatment of the most in-demand dermatologic conditions.

Port-Wine Stain



Figure 1

Courtesy of Tomaz Iniesta, MD

Rosacea



Figure 2

Courtesy of Eduardo Lauzurica, MD

Facial Telangiectasias



Figure 3

Courtesy of Guillermo Simon, MD

Leg Veins



Figure 4

Courtesy of Prof. Michael Drosner, MD

Figure 1. 3 treatments with the Nordlys SWT PR 530 and VL 555 handpieces

Figure 2. 3 treatments with the Nordlys SWT VL 555 and PR 530 handpieces

Figure 3. 3 treatments: 2 treatments with the Nordlys SWT VL 555 handpiece and 1 with the PR 530 handpiece

Figure 4. ~5 months after 1 treatment with the Nd:YAG 1064 nm applicator

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*SWT® - Selective Waveband Technology (Narrowband IPL)

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