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## Multiple Vascular Uses of the Vbeam® Laser as the Sole Treatment Modality and Its Use in Combination Therapies

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### Introduction

The Vbeam 595 nm pulsed dye laser is the gold standard in the treatment of vascular lesions, such as broken facial capillaries and rosacea, as well as in the treatment of red acne scars, surgical or burn scars, angiomas, port wine birth marks, psoriasis and wrinkles.

By far, the pulsed dye laser is the workhorse of our skin care practice because of the versatility and consistent results we have found on patients of all skin types. Additionally, Vbeam treatments are well tolerated by patients of all ages, and we are not required to treat with topicals or anesthetics that could further aggravate the skin.

Vbeam works by delivering targeted laser energy to underlying vasculature over long periods of time. The gentle and uniform heating of vessels allows consistent and effective treatment without purpura. Additionally, the cryogen cooling system protects the epidermis in a uniform and predictable manner, further helping to prevent blisters and other undesirable side effects, while keeping the patient comfortable.

### Indications

Rosacea is a common disorder affecting an estimated 14 million Americans. Because there is so little known about this condition, patients who enter our office for treatment are oftentimes disheartened, but willing to try anything to help combat their condition. Rosacea presents in different grades, and at its worst can cause significant psychological, social and occupational problems for patients.

For rosacea, Vbeam produces excellent results when used as the sole treatment for the patient. Depending on skin condition and the severity of the flare-up, we will typically treat individual telangiectasia as well as the generalized diffuse redness as it presents. To optimize purpura-free treatment for our patients, we would first treat the general redness and follow this with treatment of individual resistant telangiectasia on the face. We have found an effective typical setting for diffuse redness using the 10 mm spot size, at a 10 ms pulse duration and a fluence ranging from 6–7.5 J/cm<sup>2</sup> using the Dynamic Cooling Device™ (DCD™) setting of 30/30. Following the full-face pass, if there are resistant veins still present, we will trace them out using the 3 x 10 mm spot at 10 ms and fluence of 9–10 J/cm<sup>2</sup>, still using DCD but at a 30/20 setting. After one treatment, we see excellent results, although three to four treatments are usually required for optimum clearance for the most severely affected patients.

Acne is probably the most common reason patients seek treatment. In our office, photodynamic therapy\*, often referred to as PDT, may very well become the number one, in-office cure and prophylactic treatment for photodamage, nonmelanoma skin cancers, actinic keratosis, keratosis pilaris, acne, rosacea, psoriasis, oily skin, large pores, blotchy pigmentation and many other skin conditions.

Our protocol includes the patient first undergoing a preparation of acetone solution and microdermabrasion to remove any dead and loose skin



cells, then the application of ALA. Post ALA, we perform a 15–20-minute laser treatment with the Vbeam pulsed dye laser. Levulan™ PDT "boosts" the effectiveness of laser therapies twofold or threefold. For example, if it would normally take five to six VBeam treatments to have satisfactory results for a certain condition, one might achieve similar results in just three sessions by adding Levulan to the Vbeam session. Phototherapy is in its infancy, and at present is considered an off-label, non-FDA- approved treatment for use with the Vbeam laser. However, we have found that this combination therapy produces extraordinary results for our patients. The downside to photodynamic therapy is that the patient is required to stay out of daylight for a few days, but for severe sufferers this is a small sacrifice.

For those acne patients who do not want downtime, we will perform combination Smoothbeam®/Vbeam therapy. Combination laser treatment is extremely effective and has been shown to maintain clearance for up to 18 months. The patient photo included of Resistant Acne demonstrates significant improvement one year post treatment of combination therapy Vbeam and Smoothbeam. We recommend maintenance treatments be performed about every four months.

Another common reason patients enter our clinic is sebaceous hyperplasia, a skin condition in which a person develops small, yellowish growths that start out very small and usually flat, but can grow up to 3 mm in size. Visually, these are enlarged sebaceous glands, usually occurring around a hair follicle that presents with a darkened area resembling a clogged pore in the middle. This condition typically occurs in middle age, and tends to be genetic as we will see this in several members of the same family. These growths are not considered dangerous and oftentimes resolve themselves if left untreated.

Patients seeking treatment for sebaceous hyperplasia do not want to wait for these lesions to self-resolve. We begin by administering the Smoothbeam diode laser to the affected area. For smaller lesions, we will generally see a high clearance rate after one treatment; and with larger areas, we may perform about two to three treatments at one month intervals. While the Smoothbeam diode laser has an unparalleled clearance rate, the side effect of the treatment is localized redness and swelling. Redness can then be treated with the Vbeam laser if desired. While this therapy has been highly successful in treating sebaceous hyperplasia, there is no cure. Patients may have to return in six to nine months for another treatment to maintain clearance.

Rejuvenation\*\* can mean various things to different patients, but we treat any rejuvenation treatment as improvement in skin texture, tone, fine lines and wrinkles. How we achieve results depends on what exactly the patient is looking for. In some cases where we see a very uneven skin texture and deeper wrinkles periorbitally and periorally, we will use a combination of the Vbeam and Smoothbeam lasers. Vbeam treatment demonstrably improves skin tone and texture, while the Smoothbeam diode laser is effective at reducing deeper lines due to the selective thermal damage to the upper layers of the dermis produced by the 1450 nm wavelength. In cases where the lines are finer, we will use the Vbeam laser alone.

Treatment of scars has proven extremely effective with the Vbeam laser, especially in the early "bulking up" phase, thus reducing the length of time a scar is red, raised and thickened, and accelerating the transition to the maturation phase of wound healing. This treatment actually modifies scar growth by interfering with some of the blood vessel development into the scar, and the collagen-based characteristics of a prominent scar on the face or body. Blood vessel overgrowth in scar tissue usually leads to collagen overgrowth, which can eventually lead to scar prominence.

We are able to improve early scars by making them less visible much sooner in the healing process. In addition, we treat older, thickened scars and red acne scars.

The sooner pulsed dye treatment is initiated after a surgical procedure, the better the results will be; up to 60% improvement in Vbeam-treated scars versus only 3% improvement on untreated scars<sup>1</sup>. Ideally, we would be able to treat scars as soon as possible; however, in the photo shown, this scar was one year old when the patient finally came in for treatment. Despite the age of the scar, by using the 10 mm spot, at 1.5 ms and 5 J/cm<sup>2</sup>, after just one treatment, we saw significant improvement in the color and texture of the area.

## Conclusion

Used as a sole treatment or in combination with other therapies, the Vbeam laser is a versatile and highly effective treatment for many vascular indications. We use it to treat all types of vascular lesions, from rosacea, scars, stretch marks, angiomas and acne, as well as for rejuvenation treatments for our patients to improve wrinkles, reduce redness and promote a more even texture.

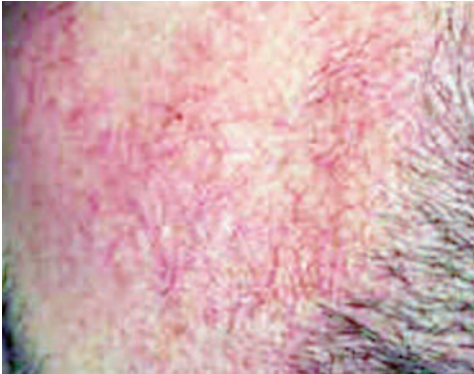
## Reference

1. Dressler Conologue, T., Norwood, C. Treatment of Surgical Scars with the Cryogen-Cooled 595 nm Pulsed Dye Laser Starting on the Day of Suture Removal. *Dermatol Surg* 2006; 32:13-20.



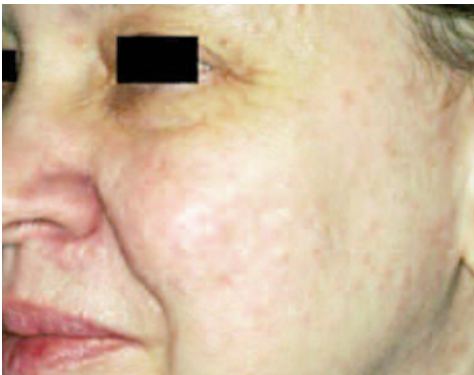
**Resistant Acne:  
Vbeam and Smoothbeam Combination Therapy**

*Very resistant acne. Before and after five Smoothbeam and four Vbeam laser treatments. The Vbeam was used for the red scars that were being left behind. The Smoothbeam was used to reduce the amount of oil being produced and expelled by the glands. This is one year after treatments, and there is still a high clearance and general reduction in redness.*



**Rosacea:  
Vbeam as sole treatment**

*Shown here before and after three Vbeam treatments for rosacea on the patient's left cheek. Clearance of telangiectasia as well as significant reduction in generalized redness.*



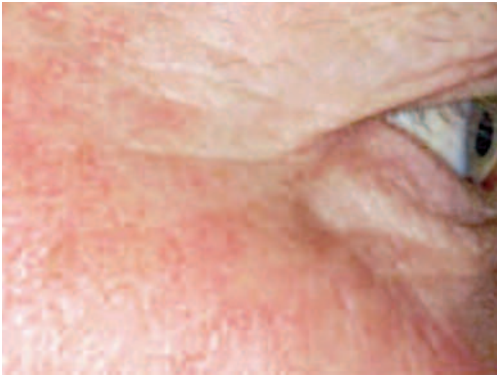
**Rejuvenation\*\*:  
Vbeam and Smoothbeam Combination Therapy**

*This patient, 57 years old, came to us with concerns of very uneven skin texture, redness and wrinkles around the eyes. Improvement was achieved by utilizing combination therapy of six Smoothbeam and four Vbeam treatments. The after photo was taken seven months post treatment.*



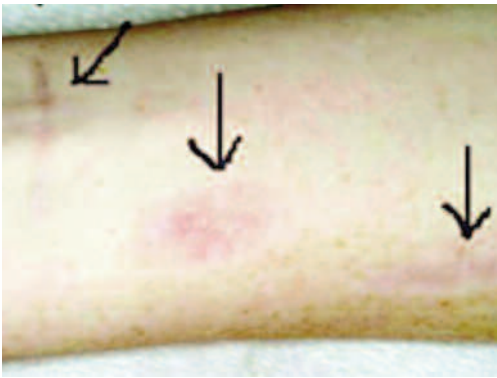
**Severe Sun Damage:  
PDT\* Using Vbeam and Levulan**

*Sixty-seven years old presented with severe sun damage and actinic keratosis. He was tired of having these lesions burned/frozen off and opted for PDT instead. This is 5 weeks after a single treatment with Vbeam and Levulan.*



**Rejuvenation:  
Vbeam as Sole Treatment**

*Wrinkles and redness before and after four Vbeam treatments. No topical products other than sunscreen were used.*



**Scar:  
Vbeam as Sole Treatment**

*One-year-old scar, the "after" photo is one week following Vbeam treatment. Additional clearance/reduction in redness may be achieved with a second treatment.*



**Acne:  
PDT\* Using  
Vbeam/Levulan**

*Acne before and after three PDT treatments using Vbeam/Levulan.*

\*The use of the Vbeam laser with PDT and/or with Levulan has not been cleared by the FDA.  
\*\* Rejuvenation by reduction or elimination of reds and browns.

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