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Vbeam® Treatment of Warts

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Introduction

Warts (verruca) are benign epithelial neoplasms of the skin and mucosa that can appear anywhere on the body. These common lesions (the incidence has been estimated at 10% in children and young adults) are caused by human papilloma virus infections (HPV)¹. Transmission of this virus typically occurs as a result of micro-traumas (warts of the hands) or contact with infected surfaces or areas (for example, public swimming pools for plantar warts).

The physical characteristics of the lesions are described below.

Verruca plantaris

HPV 1: deep and painful lesions circumscribed by a hyperkeratotic rim.

HPV 2: mosaic-like lesions that are superficial and not painful.

Verruca vulgaris

Firm papules, rough with an irregular surface. Typically located on the face, hands, and neck, not painful. Peri- or subungual warts, which are typically recurring and very painful and can lead to a malformation of the nail.

Typical treatment modalities fall into two categories, topical and surgical, and are based on a physical destruction of the infected keratinocytes. An overview follows:

Topical Treatment Modalities

Cryotherapy (liquid nitrogen) or dry ice

The purpose is to loosen the wart from the dermis; simple, quick, clean, but very painful.

Salicylic acid preparations

Used in various concentrations; not painful but very fastidious.

Intralesional bleomycin

Infrequently used.

Surgical Treatment Modalities

Electrosurgery

Quick and efficient, but painful; there is a significant risk of scarring.

CO₂ laser ablation

Typically used for recalcitrant warts; difficult and painful; potential of post-treatment complications; risk of recurrence.

As can be inferred from this overview, warts represent a therapeutic challenge. None of the modalities described above are ideal, and response rates vary, in particular with recalcitrant lesions. Various reports in the published literature indicate that the pulsed dye laser may represent an efficacious alternative to standard modalities.^{2,3,4}

While the exact mechanism of the pulsed dye laser in the treatment of warts is unclear, it most probably is based on the intense heating of dermal vessels with significant collateral damage of the infected keratinocytes. This assumes the presence of dilated and congested blood vessels at the base of the targets and is based on the theory of selective photothermolysis and photocoagulation, which suggests that a pulsed dye laser will selectively target oxyhemoglobin.^{5,6} While these reports have focused on the use of 585 nm short pulsed dye lasers, the laser used in this study was a 595 nm long-pulsed dye laser (the Vbeam).

Method

Twenty-five patients were selected, presenting the following symptoms: large and painful plantar warts; mosaic-like warts; and peri- or subungual warts. While some lesions had been previously treated some were being treated for the first time.

Vbeam treatment began using the following parameters: 1.5–3 ms pulse duration, 7 mm spot, 12–15 J/cm². The Dynamic Cooling Device™ (DCD™) settings were 30 ms spray duration and 10 ms delay. The number of pulses varied between 3 and 6 on each



wart, with one or two passes on the lesion and the surrounding 2 mm area. Three to four treatments were conducted at two- to three-week intervals. All treatments involved similar parameters.

There was no pretreatment or post-treatment care.

Results

Sixty percent of patients had complete clearance in an average of three treatments (see Figures 1 and 2). It should be noted, however, that plantar warts typically were more resistant to treatment.

There were no treatment side effects aside from a rare hematoma. There were no post-treatment complications, or incidence of scarring. All patients described the pain associated with this treatment as “bearable.” This pain can be reduced, if necessary, by pretreating the wart with cryogen spray (without the laser pulse), which leads to a cold-induced anesthesia.

Discussion

Overall, the treatment of warts remains difficult. While a spontaneous disappearance of the lesions after a long period of time is common, the indefinite obstinacy of a single wart and the rapid proliferation of numerous warts remains a common therapeutic challenge. There is at present no treatment applicable to all warts, and it is thus necessary to adapt the treatment to the location of the lesion and to the individual patient. When choosing the appropriate modality, it is necessary to consider not only efficacy, but also the side effect profile.

In terms of efficacy, the results of this study suggest that the Vbeam represents an effective modality for warts that have not yet been treated, as well as an effective last therapeutic recourse.

The Vbeam also has a very low side effect profile. The incidence of post-treatment complications is nil, the pain tolerable, and, above all, the risk of scarring or permanent complications negligible.

While longer-term follow-up remains necessary to determine any potential recurrence rate, the therapeutic results and high patient acceptance makes the Vbeam a most appealing modality for the treatment of warts.

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Figure 1—Pretreatment



Figure 2—After 2 treatments

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