

BRIEF ARTICLE

Successful Remission of Refractory Plantar Warts with Cantharidin Plus in an Immunosuppressed PatientAfsoon Ghafari-Saravi, BS¹, Yomna Amer, MD¹, Eric Simpson, MD, MCR¹¹ Department of Dermatology, Oregon Health & Science University, Portland, Oregon.**ABSTRACT**

Organ transplant patients on immunosuppressive therapies are susceptible to developing refractory human papillomavirus (HPV) infections including cutaneous warts. These warts are known to respond to conservative treatment modalities in the immunocompetent but are often refractory to multiple treatments in the immunosuppressed. Here we report a case of an immunosuppressed adult with plantar warts recalcitrant to numerous therapies that was ultimately treated successfully with cantharidin-podophyllotoxin-salicylic acid (CPS) monotherapy. After 19 treatment sessions over a 16-month time period, complete resolution was achieved. CPS may be a promising treatment modality in cases of severe, refractory verruca plantaris such as those seen in our immunosuppressed patient.

INTRODUCTION

Organ transplant patients on immunosuppressive therapies are susceptible to developing multiple skin lesions including warts.¹ Common cutaneous warts are caused by strains of the human papillomavirus (HPV). A majority of immunosuppressed patients have multiple warts with some even having hundreds.² These warts are known to respond to conservative treatment modalities in the immunocompetent but are oftentimes refractory to treatment in the immunosuppressed.³

We report a case of an immunosuppressed adult with recalcitrant plantar warts treated successfully with cantharidin-podophyllotoxin-salicylic acid (CPS).

CASE

A 34-year-old woman with chronic immunosuppression presented with multiple plantar lesions that had been resistant to numerous therapies including cryotherapy, silver nitrate, topical cidofovir, intralesional Candida antigen injections, bleomycin, topical 5-fluorouracil, squaric acid dibutylester immunotherapy, and cantharidin. Her medical history was significant for cystic fibrosis for which she had a lung transplant and was on daily immunosuppressive therapy including mycophenolate, 720 mg, tacrolimus, 4 mg, and prednisone, 5 mg.

On physical examination, the patient had multiple, large, hyperkeratotic, yellow verrucous papules and plaques at the soles of the feet with the largest on the left heel (**Figure 1**). The diagnosis of recurrent verruca plantaris in the setting of

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Figure 1. Plantar warts on the right (A) and left (B) feet before treatment with cantharidin-podophyllotoxin-salicylic (CPS).



Figure 2. Complete resolution of plantar warts with CPS monotherapy at the 33-month follow-up.

immunosuppression was made on clinical assessment. HPV typing was not performed. Initial management included shave removal of larger lesions and freezing of 10 smaller areas with liquid nitrogen. CPS was applied and remained on the skin for 12 hours before washing off. The patient followed up 1-2 times per month in clinic for treatment with cryotherapy followed by CPS. The patient noticed her warts had become smaller within the first month. She reported no adverse effects from CPS treatment. Complete resolution was observed at the 33-month follow-up (**Figure 2**).

DISCUSSION

Classical treatment in immunosuppressed patients of multiple recalcitrant plantar warts has not been effective. The three-part combined formulation of CPS in conjunction with routine paring and cryotherapy made remission possible as illustrated in our case.

Cantharidin is a vesicant produced by beetles that works by activating neutral serine proteases in the keratinocytes, leading to progressive degeneration of desmosomal dense plaques.⁴ Cantharidin is available in a topical proprietary formulation by Dörmer Laboratories of 1% cantharidin, 2% podophyllin, and 30% salicylic acid known as Cantharone Plus. While our patient's plantar warts did not respond to a formulation of cantharidin alone, there was significant improvement with Cantharone Plus.

Studies on the treatment of recalcitrant warts are sparse while there are even less studies on the treatment of plantar warts,⁵ but a preliminary study with immunocompetent patients found that 100% of patients found remission of recalcitrant plantar warts with CPS.⁶ In an observational study, 81% of patients reporting pain and 15% reporting

significant blistering in an observational study.⁷ With appropriate counseling, CPS may be a promising treatment modality in cases of severe, refractory verruca plantaris such as those seen in our immunocompromised patient.

To our knowledge, this is the first reported observation of the successful treatment of recalcitrant warts in an immunosuppressed patient with CPS and cryotherapy, suggesting that this combination therapy may be a more appropriate treatment for aggressive HPV infections that are most commonly seen with chronic immunosuppression. Previous studies have demonstrated the efficacy of CPS on recalcitrant warts in immunocompetent adults. Future observations and randomized-control trials are needed to further understand the efficacy of the combined treatment of CPS and cryotherapy on refractory plantar warts in immunosuppressed hosts.

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