

in the lesions and increased the patient's quality of life. Although our data are insufficient to assess its long-term effect, we believe that ustekinumab therapy could be of value in cases of palmar-plantar pustulosis resistant to other treatments. Further research into the mechanism by which the drug achieves the observed improvement is warranted, as well as studies with more patients to either confirm or reject the usefulness of ustekinumab in this problematic disease.

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Multiple Warts Appearing Exclusively on Psoriasis Plaques[☆]

Verrugas múltiples localizadas exclusivamente sobre las placas de psoriasis

To the Editor:

Common warts (verruca vulgaris) are found very frequently in children and adults (prevalence, 10%) and can sometimes prove difficult to treat, particularly when multiple or recalcitrant.

We report the case of a patient who developed multiple warts on psoriasis plaques.

The patient was a 58-year-old man with a history of hypertension and an immunoglobulin A monoclonal gammopathy for which he was not receiving any treatment at the time. He had a history of plaque psoriasis with joint involvement since the age of 15. Treatment with topical corticosteroids and oral methotrexate had achieved only slight improvement in this condition. He attended our clinic because of an outbreak of small erythematous-desquamative lesions distributed symmetrically across his

arms and trunk on which multiple spiny whitish papules had developed. The appearance of the papules was consistent with a diagnosis of viral warts (Fig. 1). The patient had never previously had warts. The results of the additional tests performed were normal, and serology for human immunodeficiency virus and hepatitis B and C viruses was negative. Skin biopsy revealed an acanthotic epidermis with papillomatosis, hyperkeratosis with focal parakeratosis, and no clear signs of viral cytopathic effect. A chronic inflammatory infiltrate was found in the underlying dermis. Genotyping for the human papillomavirus (HPV) performed using hybridization techniques (Clinical Arrays, Genomica) was positive for genotypes 6 and 31. The histologic diagnosis was verruca vulgaris on plaque psoriasis. Methotrexate was withdrawn and the patient started treatment with acitretin 35 mg/d. Virtually all the warts disappeared within 1 month, but the psoriasis plaques persisted. These were then treated with narrowband UV-B phototherapy with excellent results (Fig. 2).

On reviewing the literature we found 1 report of a case of psoriasis on viral warts in a patient treated with interferon- α .¹ It has been suggested that the HPV may contain proteins that stimulate keratinocyte proliferation. These proteins, and others included in the viral capsid, can be recognized by preactivated CD4+ lymphocytes and lead to the generation of specific antibodies (antigenic activation). The autoimmune reaction triggered in this way could lead to complement activation, neutrophil chemotaxis, and formation of the Munro microabscesses so characteristic

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Figure 1 Back covered with small psoriasis plaques on which warts had developed.

of plaque psoriasis.² Thus, while HPV does not cause the psoriasis, it may be involved in the pathogenesis of the disease, particularly in the case of genotypes 5 and 36,^{3,4} and contribute to keratinocyte proliferation and the perpetuation of the autoimmune reaction. Our patient tested positive



Figure 2 Clearance of both the warts and psoriasis after treatment with acitretin 35 mg/d and narrowband UV-B phototherapy.

for HPV 6 and 31, genotypes that carry only a low oncogenic risk and are often found in common warts.

In our patient, the inverse situation occurred as the viral warts only appeared on the psoriasis plaques. Some authors have suggested that the epidermal hyperproliferation characteristic of psoriasis may reactivate latent HPV infection, leading to the development of warts.⁵ Moreover, HPV DNA has been identified in psoriasis plaques, carcinomas, and epidermodysplasia verruciformis, but not in other skin diseases, such as eczemas and atopic dermatitis.⁶ In our patient, there were also other factors that could have contributed to the appearance of these warts, such as the immunosuppressant therapy he received to treat his psoriasis and the monoclonal gammopathy. A case was recently reported in which viral warts appeared suddenly in a patient with psoriasis being treated with the anti-tumor necrosis factor agent etanercept.⁷ The few articles published on the topic shed little light on this complex interrelationship between cytokines, psoriasis, and HPV infection.¹⁻⁸

Finally, in our review of the literature we found no reports of psoriasis with viral warts treated with acitretin, the drug that achieved complete resolution of the warts in our patient.

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