

## A Case of Psoriasis After Narrow Band UVB (NBUVB) Phototherapy for Vitiligo Treatment

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### ABSTRACT:

Phototherapy methods commonly used in the treatment of vitiligo include narrow-band ultraviolet B (NB-UVB). A 23-years old male was diagnosed with vitiligo in the dermatology polyclinic and was followed up in the phototherapy unit with NBUVB treatment of 3 sessions per week; in the 42nd session psoriasis plaques were seen to have developed. We suggest that this rare but important association should be considered as a side effect of narrow-band phototherapy.

**Keywords:** Psoriasis, Phototherapy, Treatment, Vitiligo

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### INTRODUCTION

Vitiligo is a widespread, acquired, auto-immune disease which is seen with hypopigmented macula and plaques that cause progressive melanocyte destruction. Phototherapy methods commonly used in the treatment of vitiligo include narrow-band ultraviolet B (NB-UVB), psoralen ultraviolet A (PUVA), excimer laser and lamps (Zubair et al, 2020). Psoriasis vulgaris is a chronic, autoimmune, inflammatory disease, seen with hyperproliferation of keratinocytes in the epidermis and affects 3.2% of the population. NB-UVB with a wavelength of 311-313 nm is a phototherapy method widely used in several dermatological diseases such as psoriasis and vitiligo. An immunomodulator effect of NB-UVB is seen in the skin through the inhibition of cytokine expression and epidermal hyperproliferation, and the capacity to present antigens to the T-cells of Langerhans cells (Yanovsky et al, 2020). In the case presented here, a patient treated with 3 sessions of

NB-UVB per week for a diagnosis of vitiligo was determined with psoriasis plaques in the 42nd session.

### CASE

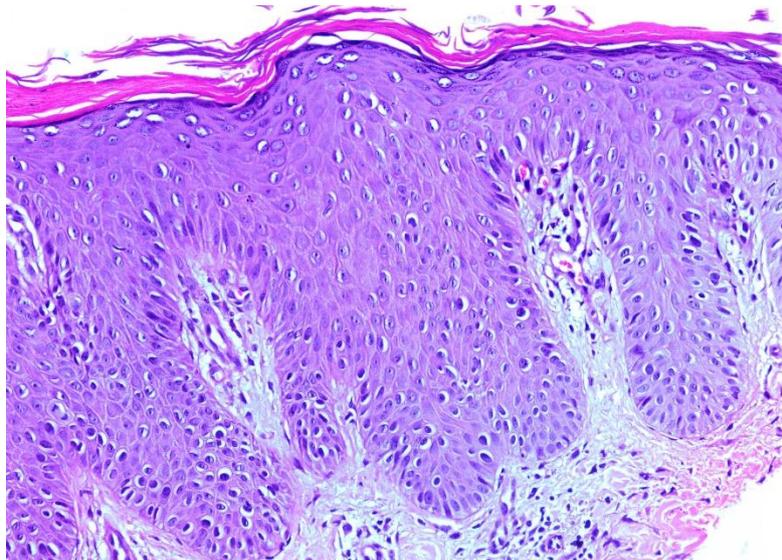
A 23-years old male was diagnosed with vitiligo in the dermatology polyclinic and was followed up in the phototherapy unit with NB-UVB treatment of 3 sessions per week; in the 42nd session psoriasis plaques were seen to have developed. The patient had had vitiligo for 5 years and had previously tolerated treatment with no side-effects. In the physical examination of the patient in the 42nd session of treatment, squamous plaque-type lesions were determined on an erythematous base on the knees, elbows and scattered over the whole body. There were also pre-existing white, hypopigmented macular-type vitiligo lesions widespread on the body (Figure 1). Other than phototherapy, the patient had not used any drugs

previously and had no infection. There was no systemic or dermatological disease other than vitiligo. There was no family history of psoriasis. A

punch biopsy was taken to confirm the diagnosis. All the materials, and analytical and statistical methods and procedures should be explained in this section.



**Figure 1.** a) knees, b) elbows; erythematous, squamous plaque lesions on and around the depigmented patch



**Figure 2.** In the histopathological examination, hyperparakeratous and psoriasiform hyperplasia was seen

In the histopathological examination, hyperparakeratous and psoriasiform hyperplasia was seen. There was scattered hypogranulosis and exocytosis. Suprapapillary thinning was seen in the epidermis with ectasic structures in the papillary dermis. Perivascular mononuclear inflammatory cell infiltration was observed in the dermis. The histopathological findings were consistent with

Psoriasis Vulgaris (Figure 2). Therefore, the phototherapy treatment of the patient was stopped. Topical steroid and moisturiser was applied as treatment for psoriasis, and after 2 weeks the lesions had decreased. Instead of phototherapy for the vitiligo, topical pimecrolimus treatment was started and the patient continued to have regular follow up. There was scattered hypogranulosis and exocytosis.

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## DISCUSSION

Psoriasis and vitiligo are commonly seen dermatological diseases, but they are rarely seen together in the same patient. Although the relationship between psoriasis and vitiligo is not fully known, cases showing this combination have been reported. In a study of 4700 psoriasis patients, Sandhu et al reported the combination of vitiligo and psoriasis in 38 patients (Sandhu et al, 2004). Giordano et al reported vitiligo with during secukinumab treatment in a psoriasis patient (Giordano et al, 2021). Goodwin et al reported the development of vitiligo patches over psoriasis lesions in a patient undergoing NB-UVB treatment for psoriasis (Goodwin et al, 2001). In another case, vitiligo lesions were reported to have developed in a patient applied with PUVA for psoriasis (Halcin et al, 1997).

During NB-UVB treatment, psoriasis lesions together with vitiligo lesions are expected to disappear or not develop. It is interesting that psoriasis lesions developed in the current patient. In previously reported cases, vitiligo has developed in psoriasis patients treated with NB-UVB, whereas the current patient was a vitiligo patient treated with NB-UVB who developed psoriasis. Cytokine levels such as tumour necrosis factor- $\alpha$  have been found to be high in the lesional and perilesional areas of psoriasis and vitiligo patients. It was suspected that some immunological reactions could have been activated during the NB-UVB treatment of the current patient, and this reaction could be more evident in inflammatory dermatological disease such as vitiligo. However, it may also have been related to the Koebner phenomenon because of the anatomic associations (Berger et al., 2006; Rodriguez-Martin et al., 2007).

To the best of our knowledge, this is the first case in literature of psoriasis developing in a patient with vitiligo treated with NB-UVB. We suggest that this rare but important association should be considered as a side effect of narrow-band phototherapy.

**Conflict of interest:** There is no conflict of interest among the authors of the article

## REFERENCES

- Berger, T. G., Kiesewetter, F., Maczek, C., Bauer, N., Lueftl, M., Schuler, G., & Simon Jr, M. (2006). Psoriasis confined strictly to vitiligo areas—a Koebner-like phenomenon? *Journal of the European Academy of Dermatology and Venereology*, 20(2), 178-183.  
<https://doi.org/10.1111/j.1468-3083.2006.01354.x>
- Giordano, D., Magri, F., Persechino, F., Lepore, A., Verde, R., Capalbo, A., & Persechino, S. (2021). Vitiligo with Progressive Repigmentation during Secukinumab Treatment in a Patient with Psoriatic Arthritis: A Case Report. *Case Reports in Dermatology*, 13(1), 209-215.  
<https://doi.org/10.1159/000510831>
- Goodwin, R. G., Finlay, A. Y., & Anstey, A. V. (2001). Vitiligo following narrow-band TL-01 phototherapy for psoriasis. *British Journal of Dermatology*, 144(6), 1264-1266.  
<https://doi.org/10.1046/j.1365-2133.2001.04247.x>
- Halcin, C., Hann, S. K., & Kauh, Y. C. (1997). Vitiligo following the resolution of psoriatic plaques during PUVA therapy. *International journal of dermatology*, 36(7), 534-536.  
<https://doi.org/10.1111/j.1365-4362.1997.tb01156.x>
- Rodríguez-Martín, M., Sáez-Rodríguez, M., Carnerero-Rodríguez, A., de Paz, R. C., Sidro-Sarto, M., Pérez-Robayna, N., Sánchez, R., García-Bustínduy, M. G., Martín-Herrera, M.A., Noda-Cabrera, A. (2007). Coincidental presentation of vitiligo and psoriasis in a patient with polyglandular autoimmune syndrome. *Clinical and experimental dermatology*, 32(4), 453.  
<https://doi.org/10.1111/j.1365-2230.2007.02415.x>
- Sandhu, K., Kaur, I., & Kumar, B. (2004). Psoriasis and vitiligo. *Journal of the American Academy of Dermatology*, 51(1), 149-150.  
<https://doi.org/10.1016/j.jaad.2003.12.014>
- Yanovsky, R. L., Huang, K. P., & Buzney, E. A. (2020). Optimizing narrowband UVB phototherapy regimens for psoriasis. *Dermatologic clinics*, 38(1), 1-10.  
<https://doi.org/10.1016/j.det.2019.08.001>
- Zubair, R., & Hamzavi, I. H. (2020). Phototherapy for Vitiligo. *Dermatologic clinics*, 38(1), 55-62.  
<https://doi.org/10.1016/j.det.2019.08.005>