

Case report



NEW ONSET OF NAIL PSORIASIS AFTER MRNA COVID-19 VACCINE: A CASE REPORT

Klimentina Gospodinova, Dimitar Gospodinov
Department of Dermatology, Venereology and Allergology, Medical University, Pleven, Bulgaria.

SUMMARY

Currently in Bulgaria the two messenger RNA vaccines used to vaccinate the population against COVID-19 are Pfizer-BioNTech COVID-19 Vaccine (COMIRNATY) and Moderna COVID-19 Vaccine. We present a case of a patient with palmoplantar form of psoriasis (in remission in the last 2 years), who has an attack of psoriasis of the nails, which began two weeks after the second dose of Pfizer-BioNTech COVID-19 Vaccine. Within the next two months, onychopathy of the nails of the ten fingers developed with the manifestation of almost all known psoriatic changes in the nail bed and nail matrix. The toenails are not affected. Topical therapy with calcipotriol/betamethasone ointment under occlusive dressings was prescribed for two months. The monitoring continues.

Keywords: messenger RNA vaccine, nail psoriasis, Nail Psoriasis Severity Index,

INTRODUCTION

With mass vaccination against the Sars-CoV-2 virus, the spectrum of systemic and skin reactions after administration of mRNA vaccines increases - allergic immediate, cytotoxic, immune-complex mediated and delayed hypersensitivity reactions; toxic reactions – pain at the injection site, fever, flu-like symptoms; activation of a pro-inflammatory immune response with exacerbation of chronic autoinflammatory and autoimmune diseases or de novo occurrence of such pathology. [1, 2, 3]

CASE REPORT

We present a 41-year-old woman with a 7-year history of palmoplantar psoriasis. Until now she has been treated only with topical corticosteroids and emollients. Maintains remission for the last 2 years with Clobetasol propionate 0.05% ointment and cream. There is no damage to the fingernails. Family burdened - father with the same diagnosis. Concomitant disease - epilepsy. She did not have COVID-19. Vaccinated with the first dose of Comirnaty at the end of October 2021, and with the second dose of Comirnaty in mid-November 2021. 13 days later changes began on the fingernails, and in 2 months developed total onychodystrophy with the manifestation of almost all known in psoriatic disease changes in the nail bed and nail matrix. Blood tests show normal blood count and C-reactive protein (CRP). Di-

rect examination for fungal nail infection, PCR and rapid antigen test for SARS-CoV-2 are negative. X-ray of the hands don't show radiographic evidence of inflammatory arthropathy, currently no radiographic evidence of psoriatic arthritis. Dermatological status – there is erythema on the palms with a purple tinge and thinning of the skin as a result of prolonged use of topical corticosteroids, dry pulpitis with hyperkeratosis and fissuring of the both thumbs (Fig.1A) and total onychodystrophy of all fingers. (Fig.1B) NAPSI (Nail Psoriasis Severity Index) score is 68 point (out of 80 for fingers).

Fig. 1. A) The palms of the patient. **B)** Total psoriatic nail dystrophy



Fig. 2. Right hand (from right to left IV, III and II fingers) - lack of eponychium of all fingers; pitting, oil drop dyschromia and transverse groove of the nail on the second finger; onychomadesis, subungual hyperkeratosis, crumbling of the nails of the third and fourth fingers.



Fig. 3. Left hand (from right to left II, III, IV and V fingers) - lack of eponychium on all fingers; subungual hyperkeratosis, onychomadesis, oily spots and crumbling of the nails of the second, third and fourth fingers; onycholysis and pittings of the fifth fingernail.



Based on the anamnesis, family history, the results of the clinical examination and the exclusion of other conditions associated with onychopathy was diagnosed with psoriasis of the nails. Topical therapy with calcipotriol/betamethasone ointment was prescribed under an occlusive dressing for a period of two months.

DISCUSSION

Although rare, exacerbations of psoriasis after vaccination have been described before and continue to be described in the COVID-19 era. [4, 5, 6] It is considered that in influenza vaccination (H1N1) stimulates the Th-1

and Th-17 cellular immune response, which is closely related to the pathogenesis of psoriatic disease through the proinflammatory cytokines secreted by these cells. [7]

Post-vaccination exacerbations of psoriasis following mRNA vaccination with COVID-19 vaccines (Pfizer and Modern) are considered by researchers to be “rare and uncommon.” There is currently no well-described link between COVID-19 vaccines and exacerbations of psoriasis, but it is a fact that post-vaccination increases levels of IL-2, IL-12, TNF- α and IFN- γ , which are also relevant to the immunopathogenesis of the disease. [8, 9]

Sotiriou et al. (2021) observed an exacerbation of psoriasis after the second dose of vaccine within 10.36 ± 7.71 days in 14 patients, which is consistent with the time of the attack in our case. Six of them, all with plaque form of the disease, were vaccinated with Pfizer mRNA BNT162b2, and two of them with PASI >10 had nail changes. [10]

Ricardo and Lipner (2021) report “de-novo” occurs nail psoriasis in 76 year old female 7 days after a second dose of Pfizer/BioNTech vaccine. This is the first publication in the world for anti-COVID-19 vaccine-induced psoriasis as well as a detailed description of onychodystrophy in connection with the Pfizer-BioNTech vaccine, changes that we also observe in our patient. (11)

At the same time it should be kept in mind that according to Egeberg et al. (2020) patients with palmoplantar form of psoriasis have a 91% increased risk of nail involvement (OR 1.91, 95% CI 1.59–2.31), which is a fact in our patient. (12) In the future, taking into account the associations between the different phenotypes of psoriasis, the patient should be monitored regularly by a GP and dermatologist due to the risk of psoriatic arthropathy [13, 14], and according to our previous studies this risk is 3 times higher in psoriatic patients with onychodystrophy (OR 2.922; RR 1.675) and 5 times higher in patients with early type Psoriasis (started before the age of 40) and onychopathy (OR 4.807; RR 2.056). [15]

CONCLUSION

We present a female patient with an attack of nail psoriasis 13 days after the second dose of Pfizer/BioNTech mRNA COVID-19 vaccine. After reading the available literature, we assume a link between vaccination and exacerbation of the dermatosis due to the following facts - the attack coincides in time after the second vaccine and coincides as a manifestation of nail psoriasis in a patient with palmoplantar form of the disease. The monitoring continues in order to monitor the effect of the applied therapy, as well as the possible development of psoriatic arthropathy.

REFERENCES:

1. Bogdanov G, Bogdanov I, Kazandjieva J, Tsankov N. Cutaneous adverse effects of the available COVID 19 vaccines. *Clin Dermatol*. 2021 May-Jun;39(3):523-531. [[PubMed](#)]
2. McMahon DE, Amerson E, Rosenbach M, Lipoff JB, Moustafa D, Tyagi A, et al. Cutaneous reactions reported after Moderna and Pfizer COVID-19 vaccination: A registry-based study of 414 cases. *J Am Acad Dermatol*. 2021 Jul;85(1):46-55. [[PubMed](#)]
3. Bellinato F, Maurelli M, Gisondi P, Girolomoni G. Cutaneous Adverse Reactions Associated with SARS-CoV-2 Vaccines. *J Clin Med*. 2021 Nov 16;10(22):5344. [[PubMed](#)]
4. Macias VC, Cunha D. Psoriasis triggered by tetanus-diphtheria vaccination. *Cutan Ocul Toxicol*. 2013 Jun;32(2): 164-5. [[PubMed](#)]
5. Yoneyama S, Kamiya K, Kishimoto M, Komine M, Ohtsuki M. Generalized exacerbation of psoriasis vulgaris induced by pneumococcal polysaccharide vaccine. *J Dermatol*. 2019 Nov;46(11):e442-e443. [[PubMed](#)]
6. de Barros MH, Avelleira JCR, Mendes KAP. Impact of yellow fever vaccine on patients with psoriasis: preliminary results. *An Bras Dermatol*. 2019 Nov-Dec;94 (6):757-759. [[PubMed](#)]
7. Munguía-Calzada P, Drake-Monfort M, Armesto S, Reguero-Del Cura L, Lopez-Sundh AE, Gonzalez-Lopez MA. Psoriasis flare after influenza vaccination in Covid-19 era: a report of four cases from a single center. *Dermatol Ther* 2021 Jan;34(1):e14684. [[PubMed](#)]
8. Sahin U, Muik A, Derhovaneessian E, Vogler I, Kranz LM, Vormehr M, et al. COVID-19 vaccine BNT162b1elicits human antibody and TH1 T cell responses. *Nature*. 2020 Oct;586(7830): 594-599. [[PubMed](#)]
9. Krajewski PK, Matusiak L, Szebietowski JC. Psoriasis flare-up associated with second dose of Pfizer-BioNTech BNT16B2b2 COVID-19 mRNA vaccine. *J Eur Acad Dermatol Venereol*. 2021 Oct;35(10):e632-e634. [[PubMed](#)]
10. Sotiriou E, Tsentemidou A, Bakirtzi K, Lallas A, Ioannides D, Vakirlis E. Psoriasis exacerbation after COVID-19 vaccination: a report of 14 cases from a single centre. *J Eur Acad Dermatol Venereol*. 2021 Dec;35(12):e857-e859. [[PubMed](#)]
11. Ricardo JW, Lipner SR. Case of de novo nail psoriasis triggered by the second dose of Pfizer-BioNTech BNT162b2 COVID-19 messenger RNA vaccine. *JAAD Case Rep*. 2021 Nov;17:18-20. [[PubMed](#)]
12. Egeberg A, See K, Garrelts A, Russel Burge R. Epidemiology of psoriasis in hard-to-treat body locations: data from the Danish skin cohort. *BMC Dermatol*. 2020 May 20;20(1):3. [[PubMed](#)]
13. Merola JF, Li T, Li W-Q, Cho E, Qureshi AA. Prevalence of psoriasis phenotypes among men and women in the USA. *Clin Exp Dermatol*. 2016 Jul;41(5):486-9. [[PubMed](#)]
14. Griffiths CEM, Armstrong AW, Gudjonsson JE, Barker JNWN. Psoriasis. *Lancet*. 2021 Apr 3;397(10281): 1301-1315. [[PubMed](#)]
15. Gospodinov D, Tisheva S. [Psoriatic arthritis as a form of comorbidity]. *Dematologia i venerologia Sofia*. 2013; 51 (2):9-16. [in Bulgarian]

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Address for correspondence:

Klimentina Gospodinova, MD, PhD
Department of Dermatology, Venereology and Allergology, Faculty of Medicine, Medical University, Pleven,
91, General Vladimir Vazov Str., 5800 Pleven, Bulgaria.
E-mail: klimentina_gospodinova@abv.bg