







The Case of Lichen Planus Pigmentosus Inversus Associated With SARS-Cov-2 Vaccine (Sinovac): A Rare Entity

SARS-CoV-2 AŞISI (Sinovac) ile İlişkili Liken Planus Pigmentozus İnversus: Nadir Bir Olgu

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Geliş Tarihi (Received): 01.11.2024

Kabul Tarihi (Accepted): 19.04.2025

Yayın Tarihi (Published): 30.04.2025

Abstract

COVID-19 vaccines may cause the onset or exacerbation of inflammatory skin diseases. However, the relationship between COVID-19 vaccines and immune-mediated skin diseases is still not fully known. Lichen planus pigmentosus inversus is a rare variant of lichen planus and, unlike lichen planus pigmentosus, this form frequently affects people with white skin. It occurs in intertriginous areas such as the groin and axillae and 90% of patients have axillary involvement. There are cases of lichen planus reported after COVID-19 vaccines, and this is the first case of lichen planus pigmentosus inversus after SARS-CoV-2 vaccine (Sinovac). Additional studies are needed to demonstrate this relationship.

Keywords: Covid -19, Dermoscopy, Dermatoscopy, Lichen Planus Pigmentosus, Vaccine.

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Öz

COVID-19 aşılı inflamatuvar deri hastalıklarının başlamasına veya alevlenmesine neden olabilir. Bununla birlikte, COVID-19 aşılı ile immün aracılı deri hastalıkları arasındaki ilişki hala tam olarak bilinmemektedir.

Liken planus pigmentosus inversus, liken planusun nadir görülen bir varyantı olup liken planus pigmentozusun aksine, bu form sıklıkla beyaz tenli kişileri etkiler. Kasık ve koltuk altı gibi intertriginöz bölgelerde ortaya çıkar ve hastaların %90'ında aksiller tutulum mevcuttur.

COVID-19 aşılı sonrası bildirilen liken planus olguları mevcut olup, bu vaka inaktif COVID-19 aşısı (Sinovac) sonrası ortaya çıkan liken planus pigmentosus inversusu bildiren ilk vakadır. Bu ilişkiyi ortaya koymak için ek çalışmalara ihtiyaç vardır.

Anahtar Kelimeler: Covid -19, Dermatoskopi, Pigmente Liken Planus, Aşı.

Atıf/Cite as: Ünal E, Gedikli SN, Şenel F, Yücel MB. The case of lichen planus pigmentosus inversus associated with SARS-CoV-2 vaccine (Sinovac): a rare entity. Abant Med J. 14(1):28-31.

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Introduction

Coronavirus disease 2019 (COVID-19) vaccines may cause the onset or exacerbation of inflammatory skin diseases such as lichen planus, psoriasis, and bullous pemphigoid. However, the relationship between COVID-19 vaccines and immune-mediated skin diseases is still unknown (1). Here, we present a case of lichen planus pigmentosus inversus (LPPI) that occurred 1 week after the second dose of Sinovac vaccine.

Case Presentation

A 60-year-old female patient was admitted to our outpatient clinic with the complaint of a brown patch that started in the right axilla and then appeared in the left axilla, 1 week after the second dose of the Sinovac vaccine. Upon dermatological examination, there was a brown patch in both axillae, more common in the left axilla (Figure 1a, b). There was no oral mucosa or nail involvement. The patient had no known comorbidities, and no abnormalities were detected in routine laboratory tests and hepatic serology. In dermoscopic examination; perifollicular grey-brown dots were present, perifollicular dot detected in wood mode (Figure 1c, d). The histopathological examination of the left axilla incisional biopsy revealed a lichenoid inflammatory infiltrate with melanin leakage (Figure 1e). Histopathology was consistent with LPPI based on these findings. Tacrolimus 1% ointment and methylprednisolone aceponate ointment were prescribed to the patient.

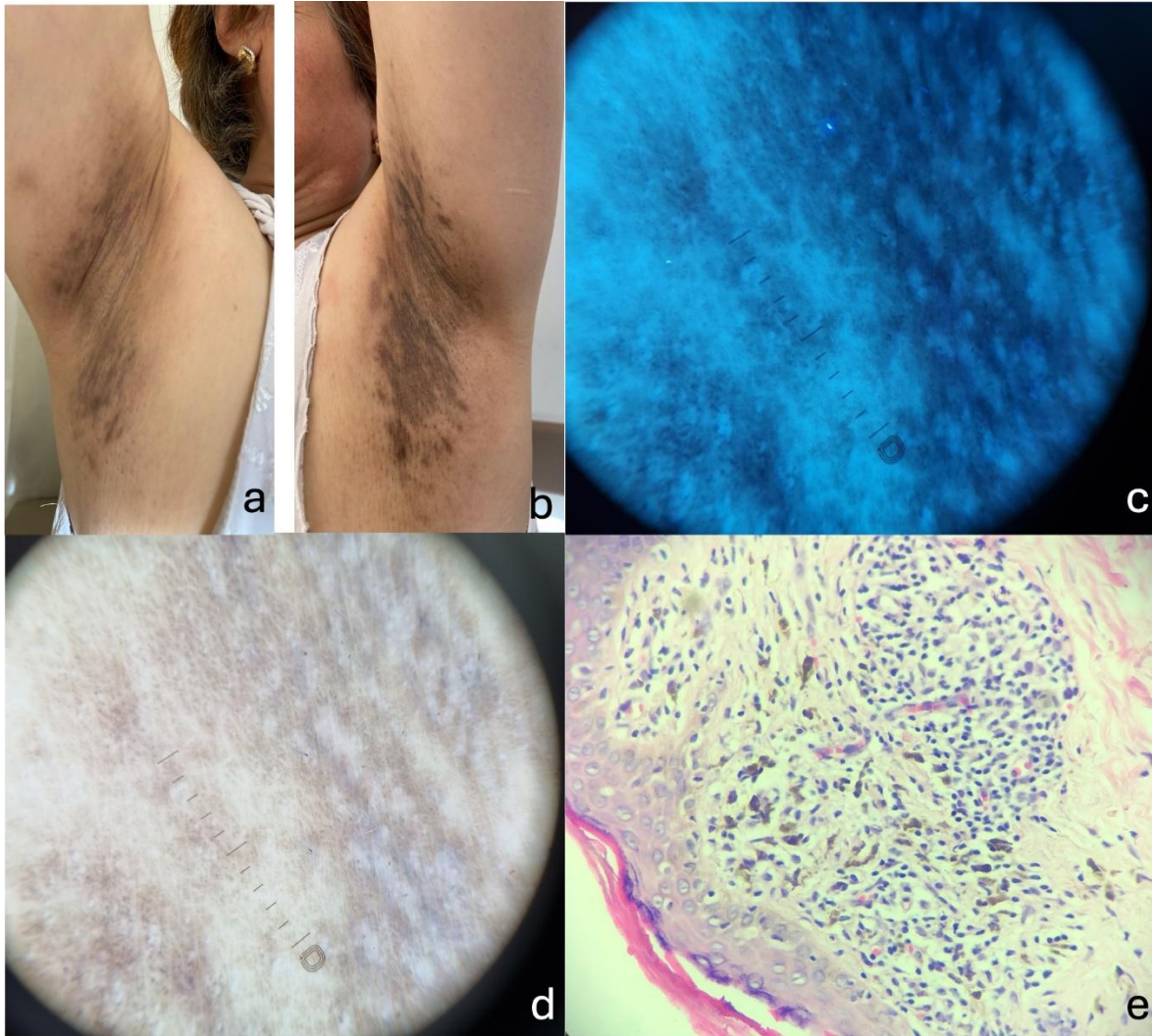


Figure 1.

- (a,b) Brown patch in both axillae, more common in the left axilla
- (c) Perifollicular dot detected in wood mode (DermLite-5®, x10 magnification)
- (d) Perifollicular grey-brown dots (DermLite-5®, x10 magnification, polarized mode)
- (e) Orthokeratotic hyperkeratosis, basal vacuolar degeneration, melanin incontinence in the superficial dermis and band-like chronic inflammation. (Hematoxylin-Eosin x400)

Discussion

Lichen planus pigmentosus inversus is a rare variant of lichen planus (2). Unlike lichen planus pigmentosus (LPP), which predominantly affects individuals with darker skin tones and is commonly observed in sun-exposed areas, LPPI is more frequently encountered in light-skinned individuals and characteristically involves intertriginous and flexural regions, such as the axilla and groin, which are typically non-sun-exposed (3). Axillary involvement is present in 90% of patients (2).

Histopathologically, it is characterized by pigment incontinence, vacuolar degeneration and keratinocyte apoptosis in the basal cell layer, and a band-like lymphohistiocytic lichenoid infiltrate in the dermis (4). Dermoscopy of LPPI reveals three distinct patterns. The diffuse pattern is characterized by homogenous, structureless brownish areas, likely corresponding to epidermal pigmentation. The dotted pattern consists of blue-gray-brown dots and globules, presumably representing dermal melanophages. The mixed pattern, as the most complex presentation, combines features of both patterns, indicating concurrent epidermal and dermal pigmentary alterations (5).

All vaccines activate the immune system, triggering a certain level of inflammation, which can result in various skin reactions (6). It is thought that the COVID-19 vaccine induces a Th1 response and leads to increased levels of cytokines such as IL-2, TNF- α and IFN- γ , which play a central role in the development of LP (7). Although the exact etiology of LPP is unknown, it is thought to be a lichenoid reaction to many agents, such as viral infections, vaccines, trauma, and ultraviolet exposure (8). LP has been described after different vaccines (hepatitis B, influenza, rabies, and combination vaccines) and more recently COVID-19 vaccines. A single case of lichen planus occurring after Sinovac vaccine has been reported. Since the pathogenesis of LPPI is similar to classical LP, it is not surprising that LPPI can also be elicited by COVID-19 vaccines (7).

Thus far, three cases of LPPI following COVID-19 vaccination have been reported in the literature. Sun et al. described a case that developed two weeks after the first dose of the Oxford-AstraZeneca vaccine, with disease exacerbation following the second dose. Edek et al. reported another case in which skin lesions appeared one week after the third dose of the Pfizer-BioNTech vaccine, followed by nail involvement two weeks later. Similarly, Gil-Quinones et al. reported an LPPI case emerging two weeks after the second dose of the Oxford-AstraZeneca vaccine (7,9,10). These reports suggest a potential temporal association between COVID-19 vaccination and the onset or exacerbation of LPPI.

Our case is the LPPI reported after inactivated vaccine (Sinovac) vaccination. Additional studies are needed to clarify this relationship.

Informed Consent: Written consent was obtained from the participant.

Conflict of Interest: Authors declared no conflict of interest.

Financial Disclosure: Authors declared no financial support.

Author Contributions: Data Collection/Processing: S.N.G., F.Ş.; Literature Review: M.B.Y.; Drafting/Writing: E.Ü., S.N.G.; Critical Review: E.Ü. The authors have accepted responsibility for the entire content of this manuscript and approved its submission.

References

1. Català A, Muñoz-Santos C, Galván-Casas C, Roncero Riesco M, Revilla Nebreda D, Solá-Truyols A, et al. Cutaneous reactions after SARS-CoV-2 vaccination: a cross-sectional Spanish nationwide study of 405 cases. *Br J Dermatol*. 2022 Jan;186(1):142-52.
2. Weston G, Payette M. Update on lichen planus and its clinical variants. *Int J Womens Dermatol*. 2015 Sep 16;1(3):140-149.
3. Gaertner E, Elstein W. Lichen planus pigmentosus-inversus: case report and review of an unusual entity. *Dermatol Online J*. 2012 Feb 15;18(2):11.
4. Al-Mutairi N, El-Khalawany M. Clinicopathological characteristics of lichen planus pigmentosus and its response to tacrolimus ointment: an open label, non-randomized, prospective study. *J Eur Acad Dermatol Venereol*. 2010 May;24(5):535-40.

5. Friedman P, Sabban EC, Marcucci C, Peralta R, Cabo H. Dermoscopic findings in different clinical variants of lichen planus. Is dermoscopy useful? *Dermatol Pract Concept*. 2015 Oct 31;5(4):51-5.
6. Chaima K, Fatma H, Nadine K, Chahir K, Emna B, Khadija S, et al. Lichen planus pigmentosus post COVID-19-vaccination: A case report with literature review. *Dermatol Ther*. 2022 Dec;35(12):e15891.
7. Sun L, Duarte S, Soares-de-Almeida L. Case of lichen planus pigmentosus-inversus after Oxford-AstraZeneca COVID-19 vaccine: cause or coincidence? *J Eur Acad Dermatol Venereol*. 2022 Jul;36(7):e514-e516.
8. Rai T, Bohara A, Jha PK. A case of lichen planus pigmentosus in blaschkoid pattern in a 10-year-old female. *Clin Dermatol Rev*. 2021;5(1):104-106.
9. Edek YC, Tamer F, Ögüt B. Lichen planus pigmentosus inversus with nail involvement following COVID-19 vaccination: A case report. *Dermatol Ther*. 2022 Nov;35(11):e15809.
10. Gil-Quiñones SR, Velandia JA, Velandia F, Barrera MY. Lichen Planus and Lichen Planus Pigmentosus Inversus Following COVID-19 Vaccine in Dark Phototype Patients. *Actas Dermosifiliogr*. 2024 Jun;115(6):609-611.