

Trilateral Blaschkoid linear lichen planus associated with COVID-19 vaccination

Theodora Douvali, Eleni Zachariadou, Leftheria Tampouratzi, Maria Gerochristou, Maria Gerodimou, Christina Vourlakou, Vasiliki Chasapi

¹Andreas Syggros Hospital of Dermatological and Venereological diseases, Athens, Greece, ²Tzaneio Hospital of Piraeus, Athens, Greece

Corresponding author: Eleni Zachariadou, MD, E-mail: elezach@gmail.com

ABSTRACT

Reported cases of linear lichen planus following multiple Blaschko's lines are rare. Herein, we present a middle-aged female patient who had unilateral lesions of linear lichen planus that followed Blaschko's lines in three different sites of the body. The only history given was previous triple immunization against COVID-19 with the Pfizer vaccine and backache with right-sided trochanteric pain over the past year. Interestingly enough, during the diagnostic process, raised serum angiotensin-converting enzyme (SACE) was revealed along with signs of sacroiliitis and trochanteric bursitis.

Key words: Linear lichen planus, Blaschko lines, SACE, COVID-19 immunization

INTRODUCTION

Linear lichen planus (LLP) is a rare variant of lichen planus (LP) characterized by lichenoid, pruritic, faint erythematous to violaceous papules arranged in a linear pattern along the lines of Blaschko, which may reveal embryological developmental pathways. It represents around 0.5% of LP cases. Children and young adults are mostly affected, yet it may also be seen in older adults. It is thought that LLP arises due to an abnormal keratinocyte clone that is only unmasked after the initiating event for lichen planus. The pathophysiological connection to Blaschko lines is still under investigation. The exact underlying cause of LLP is unknown, yet it has been associated with metastatic CA, previous infections, especially HCV, vaccinations, and various other autoinflammatory disorders. The diagnostic process and treatment modalities for linear lichen planus are similar to those of the classic LP or other variants.

CASE REPORT

This was the case of a fifty-year-old female patient who presented with a ten-month history of recurrent

unilateral, itchy, erythematous/purple, flat-topped papules with a linear distribution along the Blaschko lines of the right arm, right abdominal site, and right hip emerging at the same time (Fig. 1). It was previously mistakenly treated as herpes zoster with no resolution following antiviral treatment with acyclovir *per os*. Our patient revealed a recent vaccination with three doses of Pfizer COVID-19 vaccination and a persistent backache with right-sided trochanteric pain over the past year. A punch biopsy was taken with a clinical differential diagnosis of linear lichen planus, inflammatory linear verrucous epidermal naevus, and psoriasis. Histopathology revealed superficial inflammatory dermatoses of a lichenoid interface dermatitis type with the presence of cytoid bodies at the dermoepidermal junction, suggesting the diagnosis of lichen planus (Figs. 2a and 2b). Interestingly, her serological investigations revealed a raised SACE (serum angiotensin-converting enzyme), while the rest of serological investigations were normal [1]. Therefore, a series of investigations was arranged, including a chest X-ray, which returned normal. MRI of her spine and pelvis showed mild evidence of sacroiliac

How to cite this article: Douvali T, Zachariadou E, Tampouratzi L, Gerochristou M, Gerodimou M, Vourlakou C, Chasapi V. Trilateral Blaschkoid linear lichen planus associated with COVID-19 vaccination. *Our Dermatol Online*. 2024;15(4):376-378.

Submission: 26.04.2024; **Acceptance:** 29.07.2024

DOI: 10.7241/ourd.20244.10



Figure 1: Clinical picture of linear lichen planus; polygonal, violaceous, flat-topped papules and plaques following Blaschko lines on the right arm, right abdominal site, and right hip.

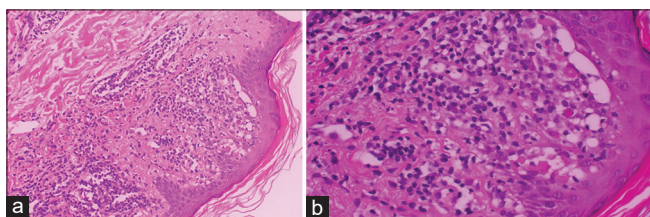


Figure 2: (a) Histopathology of lichen: liquefactive degeneration in the basal cell layer (hydropic degeneration) (H&E). (b) Histopathology of lichen: colloid (Civatte) bodies in the epithelium or superficial lamina propria (H&E).

arthropathy, right-sided trochanteric bursitis, and intervertebral arthropathy at the level of O5-L1. A mammogram and abdominal ultrasound were also performed and were unremarkable, leaving the raised SACE a mystery to be solved. She was advised to visit a rheumatologist for further evaluation of the MRI findings. We treated the patient successfully with topical clobetasol propionate 0.05% cream combined with pimecrolimus 1% cream on different days.

DISCUSSION

Linear lichen planus in middle-aged adults, especially when distributed in multiple sites of Blaschko's lines, is rare [2]. The etiology and detailed pathophysiology remain unclear. In our case, the history of three doses of the Pfizer COVID-19 vaccination enhances the theory of positive correlation between LP and COVID-19 vaccinations, as presented before [3]. We encourage future professionals to further investigate the cutaneous reactions to SARS-CoV vaccinations related or not to the number of doses. Additionally, as emerged in our case, the significance of a raised SACE remains

to be seen in the literature. It would be interesting to measure SACE in similar cases in order to assess this as a diagnostic or prognostic tool [2]. In regard to the coexistence of an underlying inflammatory arthropathy at the site of linear lichen planus, this also needs to be observed, and one might note that it enhances the theory that they share common autoinflammatory pathophysiology and, potentially, therapy choices [4]. Currently, however, topical corticosteroids and calcineurin inhibitors remains the first-line treatment of LLP.

CONCLUSION

In conclusion, this was a case report regarding a rare occasion of linear lichen planus simultaneously in three sites of the body following the Blaschko lines in a middle-aged woman. It was directly associated with previous a vaccination against COVID-19, making LLP another potential dermatosis provoked by COVID-19 vaccination. We found a potential association with inflammatory arthropathy in the affected site and raised SACE (serum angiotensin-converting enzyme) that could not be attributed to another cause. In an environment of continuous research for the pathophysiology of linear lichen planus and its association with autoinflammatory conditions, we felt it was worth adding this case to the dermatological scientific community for further consideration and exploration of linear lichen planus alongside Blaschko lines and its association with a previous vaccination against COVID-19 and its significance.

Consent

The examination of the patient was conducted according to the principles of the Declaration of Helsinki.

The authors certify that they have obtained all appropriate patient consent forms, in which the patients gave their consent for images and other clinical information to be included in the journal. The patients understand that their names and initials will not be published and due effort will be made to conceal their identity, but that anonymity cannot be guaranteed.

REFERENCES

1. Studdy PR, Lapworth R, Bird R. Angiotensin-converting enzyme and its clinical significance: A review. *J Clin Pathol.* 1983; 36:938.
2. Ogawa T, Aitake U, Matsuyama M, Hizawa N, Nomura T. Linear lichen planus in the lines of Blaschko suggestive of immune-related adverse event. *J Cutan Immunol Allergy.* 2022;5:109-11.

3. Alghamdi FA, Khayyat ST, Alshareef MM, Felemban W. New-onset lichen planus induced by the Pfizer COVID-19 Vaccine. *Case Rep Dermatol Med.* 2022;2022:2082445.
4. Masters SL, Simon A, Aksentijevich I, Kastner DL. Horror autoinflammaticus: The molecular pathophysiology of autoinflammatory disease (*). *Annu Rev Immunol.* 2009; 27:621-68.

Copyright by Theodora Douvali, et al. This is an open-access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.

Source of Support: This article has no funding source.

Conflict of Interest: The authors have no conflict of interest to declare.