Received: 2 June 2022 | Revised: 28 August 2022 | Accepted: 9 September 2022

DOI: 10.1111/jocd.15379

JCD Journal of Cosmetic Dermatology WILEY

LETTERS TO THE EDITOR

Lichen spinulosus following COVID-19 infection: Another possible cutaneous manifestation of COVID-19?

COVID-19 infection has been associated with various dermatologic manifestations including urticarial eruption, pseudo-chilblain, maculopapular rash and vesicular lesions.[1] Recently, a case of new-onset spiny keratoderma in association with COVID-19 has been reported by Dominguez-Santas et al.[2] Similar to the case described in this letter, we would like to share our experience with a patient who developed folliculocentric hyperkeratotic papules following mildly symptomatic COVID-19.

A 36-year-old man with no other known disease, presented to our clinic due to asymptomatic, follicular, white, spiny, and milimetric papules on the neck, arms, and trunk (Figure 1). There was no involvement of the palmoplantar areas. The patient noticed the lesions 1 week ago but he did not know the exact time at which the lesions started to appear. He had been tested positive for COVID-19 infection approximately 2 months ago. The patient used favipiravir, hydroxychloroquine, and nonsteroidal anti-inflammatory drugs for the mildly symptomatic COVID-19. He did not have any other known systemic disease or previous skin disorder and he was not on any medication currently. Our initial diagnoses were spiny follicular hyperkeratosis (SFH), lichen spinulosus, multiple minute digitate hyperkeratosis, spiky follicular mycosis fungoides, phrynoderma, and trichodysplasia spinulosa. A 4-mm punch biopsy was taken from the spiny papules and showed dense, spiny keratin plugging in the follicular lumen along with minimal inflammation around the follicle (Figure 2). Anti-HIV antibody was negative; the VDRL test was non-reactive. Serum level of vitamin A was normal; urine and serum electrophoresis did not reveal any associated monoclonal gammopathy. Malignancy screening tests were negative and there was no familial history of keratoderma. He was diagnosed with lichen spinulosus possibly associated with COVID-19, based on clinical and histopathological grounds. The lesions showed partial regression within a month after regular topical urea application.

Lichen spinulosus is a rare skin disease which is most commonly observed in children and young adults in the form of round/oval, rough, skin-colored, folliculocentric papules on the extensor surfaces of the extremities and chest.[3] Severe generalized forms of lichen spinulosus have also been described in adults in association with a systemic disease including Crohn's disease, human immunodeficiency virus (HIV) infection, and acne conglabata.[4–6] Histopathological examination of lichen spinulosus shows keratotic plugging of the follicle accompanied by a perivascular and perifollicular mononuclear infiltrate.[3] Similar to the histopathological features of lichen spinulosus, SFH is reported to present with orthoparakeratotic follicular spike and moderate lymphocytic perivascular inflammation in the upper dermis.[7] Therefore, we were not able to distinguish between lichen spinulosus and SFH based on pathological findings. In the literature,

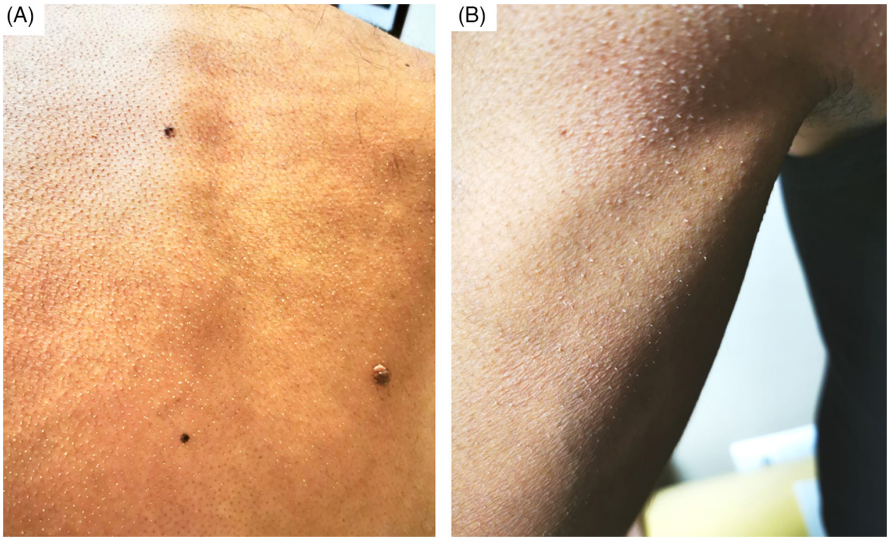

FIGURE 1 Milimetric, follicular, hyperkeratotic spicules present upon the back (A) and arms (B)

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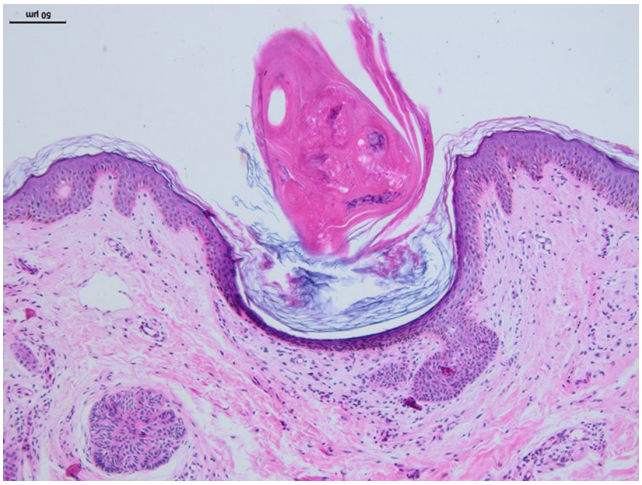

FIGURE 2 Spiny keratin plugging and minimal inflammation around the follicle (Hematoxylin & Eosin, x200)

SFH is most commonly reported to develop on the chin and neck.[7,8] On the contrary, lichen spinulosus most commonly presents with patches of follicular papules with keratotic spines upon the trunk and extremities[9] just like our case. Since the clinical locations of our case were more compatible with typical lichen spinulosus than SFH, the final diagnosis was lichen spinulosus.

Lately, spiny keratoderma is reported to develop in association with mild COVID-19 infection.[2] In this case, a 68-year-old man presented with milimetric, spiny, keratotic papules in both palms 1 month after mild COVID-19 infection.[2] Similar to our patient, no infectious disease such as HIV and hepatitis, drug or malignancy which would trigger lichen spinulosus, was detected in the case reported by Dominguez-Santas et al.[2] Furthermore, Tammaro et al.[10] recently reported a case of severe palmar hyperkeratosis and hematochezia observed in a 85-year-old man who had interstitial pneumonia, myocarditis, and severe respiratory failure due to COVID-19. The severity of cutaneous hyperkeratosis showed correlation with the deterioration of clinical symptoms in this case.[10] Direct cytopathic effect of SARS-CoV-2 on the endothelial cells and the hyperinflammatory environment developing in the setting of COVID-19 infection have all been asserted to be associated with the emergence of cutaneous manifestations of the disease.[11] We believe that these factors might have also played a role in the development of lichen spinulosus observed in our patient.

Since there was temporal relationship between the emergence of hyperkeratotic spicules and COVID-19 infection and no other underlying cause such as solid or hematological malignancy was detected; we believe lichen spinulosus could be a late cutaneous manifestation of COVID-19 infection. Further observations are needed to support our findings.

AUTHOR CONTRIBUTIONS

Aysel Cakir and Ecem Bostan involved in conceptualization, data curation, and writing the original draft. **Ozay Gokoz involved in** conceptualization, data curation, and reviewing the original draft.

FUNDING INFORMATION

No financial support was provided for the conduct, preparation, collection, analysis, interpretation, and writing of the report.

KEYWORDS

COVID-19, hyperkeratosis, skin

CONFLICT OF INTEREST

The authors declare that there is no conflict of interest.

DATA AVAILABILITY STATEMENT

Data sharing is not applicable to this article as no new data were created or analyzed in this study.

ETHICS STATEMENT

The authors declare that no ethical committee approval was needed.

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