Primary cutaneous lymphoma and risk for severe COVID-19: a prospective study of 48 cases in Morocco

Editor,

Primary cutaneous lymphomas (PCLs) are rare non-Hodgkin’s lymphomas that are present in the skin without any extracutaneous involvement at the time of initial diagnosis. The group of PCLs shows distinct clinical, histological, immunophenotypic and genetic characteristics. The impact of the Covid-19 pandemic on care of melanoma patients in Berlin, Germany: the MelacoVID survey. Eur J Dermatol 2021; 31: 521–529.

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S. Caini, M. Brusasco, G. Niero, V. De Giorgi, P. Quaglino, The group of Asai Y, Nguyen P, Hanna TP. Impact of the COVID-19 pandemic on skin health with Ricerca Corrente 5 per 1000 funds.

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Funding sources

We collected all patients with COVID-19 and described their clinical data and evolution. All statistical calculations were performed using Jamovi ver. 2.2.2.
COVID-19 outcomes included mild, moderate and severe. This classification was established based on clinical, biological and radiographic evidence:

- **Mild Illness**: Individuals who have any of the various signs and symptoms of COVID-19 but who do not have shortness of breath, dyspnoea or abnormal chest imaging.
- **Moderate Illness**: Individuals who show evidence of lower respiratory disease during clinical assessment or imaging and who have an oxygen saturation (SpO2) ≥ 94%.
- **Severe Illness**: Individuals who have SpO2 < 94% on room air at sea level.

Our study included 48 patients (96% Mycosis fungoides/Sézary (MF/SS), 4% non-MF/SS primary cutaneous lymphomas); 40% were IA stage, and 21 patients (60%) received systemic treatment.

Nine Patients (18%) did not receive COVID-19 vaccines, 17 patients (35%) received partial immunization and 22 patients (45%) received complete immunization.

Thirty-six patients (75%) suffered from COVID-19, median age of 55.2 years (SD = 15.5); The sex ratio of males to females was 2.9.

The most common clinical manifestations of COVID-19 were fever (75%), fatigue (52%), headache (50%), anosmia (38%), diarrhoea (30%), dysgeusia (27%) and dyspnoea (19%).

Comorbidities including smoking, diabetes, hypertension, bronchial asthma and ischaemic heart disease were common in the PCL patients COVID-19 positives.

All baseline clinical characteristics and evolution are listed in Table 1.

The haematological and coagulation parameters are presented in Table 2. In all, 25% patients experienced mild disease, 33% moderate disease and 42% severe disease: 46% required hospitalization, 26% needed ICU and 20% died.

The proportion of mortality in our patients is 8% vs. 1.7% in our Hospital.

Totally 85% of patients reported stability of their PCLs, 6% improvement and 9% worsening.

There were limited data regarding PCL and COVID-19.

### Table 1 Baseline clinical characteristics and evolution of the PCL patients COVID positive (n = 36)

| Variables                  | Characteristics |
|----------------------------|-----------------|
| Comorbidity                |                 |
| Smoking                    | 4 (11%)         |
| Diabetes mellitus          | 10 (27%)        |
| Hypertension               | 8 (22%)         |
| Bronchial asthma           | 2 (5%)          |
| Ischaemic heart disease    | 3 (8%)          |
| Clinical manifestations    |                 |
| Diarrhoea                  | 11 (30%)        |
| Abdominal pain             | 8 (22%)         |
| Anosmia                    | 14 (38%)        |
| Dysgeusia                  | 10 (27%)        |
| Fever                      | 27 (75%)        |
| Dyspnoea                   | 7 (19%)         |
| Headache                   | 18 (50%)        |
| Fatigue                    | 19 (52%)        |
| Rhinorrhoea                | 6 (16%)         |
| Skin rash                  | 1 (2%)          |
| COVID formes               |                 |
| Mild                       | 9 (25%)         |
| Moderate                   | 12 (33%)        |
| Severe                     | 15 (42%)        |
| Outcome at end of lock down|                 |
| Improvement                | 2 (6%)          |
| Stationary                 | 30 (85%)        |
| Progression                | 4 (9%)          |

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### Table 2 Laboratory data of PCL patients COVID-19 (n = 48)

| Laboratory data          | Normal range | COVID-19 Negative (n = 12) | COVID-19 Positive (n = 36) | P value |
|--------------------------|--------------|----------------------------|---------------------------|---------|
| Creatinine (mg/L)        | 6–13         | 8.83 ± 1.64                | 11.1 ± 2.57               | 0.008*  |
| CRP (mg/L)               | <5           | 5.67 ± 2.10                | 234 ± 62.4                | <0.001* |
| ALT (Units/L)            | <40          | 36.92 ± 14.24              | 34.1 ± 8.71               | 0.409   |
| AST (Units/L)            | <35          | 31 ± 9.18                  | 29.9 ± 15.3               | 0.858   |
| LDH (Units/L)            | 125–243      | 174.58 ± 29.17             | 343 ± 78.8                | <0.001* |
| hs Troponin-I (ng/L)     | 2–34         | 12.33 ± 8.8                | 29.7 ± 15.9               | <0.001* |
| Serum Ferritin (ng/mL)   | 23.9–336.2   | 133 (53.3–263)             | 554 (467–847)             | <0.001* |
| Fibrinogen (g/day)       | 2–4          | 4.53 ± 2.68                | 5.02 ± 1.57               | 0.561   |
| WBC (× 10^3/µL)          | 4–10         | 9.24 ± 6.71                | 9.48 ± 5.53               | 0.918   |
| Hb (g/dL)                | 13–17        | 11.13 ± 2.47               | 12.27 ± 5.65              | 0.341   |
| Platelet (× 10^3/µL)     | 150–450      | 258.90 ± 136.12            | 219.37 ± 111.14           | 0.407   |
| Lymphocytes (× 10^3/µL)  | 1.5–4        | 1.78 ± 1.19                | 4.56 ± 7.3                | 0.319   |

*P < 0.05.
Our study suggests that patients who suffer from PCLs may represent a risk group for potential life-threatening complications in case of infection with SARS-CoV-2.

Risk factors for infections in PCL patients include lymphopenia, chronic organ failure (renal, cardiac or respiratory), Sezary syndrome, other comorbidities (e.g. diabetes and hypertension), aggressive immunosuppressive treatment, advanced/aggressive disease and older age leading to severe COVID-19 symptoms.  

Several guidelines for the management and the treatment of cutaneous lymphoma during the COVID-19 pandemic have been recently established by the United States CL Consortium and the EORTC CLTF.  

In conclusion, physicians should consider that PCL patients are at risk for severe COVID-19; therefore, reinforced preventive measures and prioritization in vaccination strategies are required.

**Conflicts of interest**

None.

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None.

**Data availability statement**

Data openly available in a public repository that issues datasets.

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**Case of lichen planus pigmentosus–inversus after Oxford–AstraZeneca COVID-19 vaccine: cause or coincidence?**

Dear Editor,

While the COVID-19-vaccinated population is increasing globally, more vaccine-associated cutaneous adverse events are reported. Immunogenic effects of vaccines lead to altered levels of chemokines and cytokines, which activate different key players of the immune system. The skin and mucosa as boundary surfaces to the environment are largely affected by the general activation of the immune system sparked by vaccines. Lichen planus (LP) has been documented after COVID-19 mRNA vaccines. Recently, a lichenoid eruption after Oxford–AstraZeneca COVID-19 vaccine was also described.  

We report a peculiar variant of lichen planus after Oxford–AstraZeneca vaccination.

A 64-years-old phototype III woman, with no relevant past medical history, presented to our department with a three-month history of persistent hyperpigmented lesions in the intertriginous areas. The lesions were slightly pruritic and developed 2 weeks after the inoculation of the first dose of Oxford–AstraZeneca COVID-19 vaccine. She did the second dose of the same vaccine and reported clinical worsening. She denied prior history of medication use, trauma or sun exposure, and her family history was unremarkable. Physical examination revealed symmetrically distributed, dark-brown macules, papules and plaques on the folds (Fig. 1). Mucous membranes and nails were not involved. Routine laboratory tests and hepatitis serology showed no anomalies. A skin biopsy of the lumbar area was consistent with lichen planus (Fig. 2). Based on the clinical picture and the histopathology findings, the diagnosis of lichen planus pigmentosus–inversus (LPPi) was made. Topical betamethasone 0.05% ointment was prescribed, and a minor clinical improvement was observed after two months of follow-up, such as a decline in pigmentation.

LPPi, first described in 2001 by Pock et al. is a rare subvariant of lichen planus pigmentosus (LPP), with only a few cases reported in medical literature so far. It has been most frequently reported in light-skinned patients with the development of asymptomatic to slightly pruritic, hyperpigmented patches in an intertriginous distribution. The histopathology is generally characterized by a hyperorthokeratotic epidermis with variably band-like inflammatory infiltrate on the superficial dermis, containing lymphocytes and histiococytes with a prominent pigmentary incontinence. The pathogenesis of LPPi was suggested to be related to a T-lymphocyte-mediated, cytotoxic activity against basal keratinocytes, similar to classic LP. Although the exact aetiology of LPP remains