Received: 20 June 2020 | Revised: 24 June 2020 | Accepted: 6 July 2020

DOI: 10.1111/dth.14011

LETTER

DERMATOLOGIC THERAPY WILEY

Coronavirus disease 2019 (COVID-19) rash in a psoriatic patient treated with Secukinumab: Is there a role for Interleukin 17?

Dear Editor,

In December 2019, the coronavirus SARS-CoV-2 (Severe Acute Respiratory Syndrome CoronaVirus 2) was identified in China and the COVID-19 (Coronavirus Disease 19) infection rapidly spread.

Various cutaneous manifestations have been observed in COVID-19 patients[1] and there has been worldwide concern among patients undergoing biologic therapies.[2-4] We report our experience with a COVID-19 psoriatic patient treated with anti-interleukin-(IL)-17 who developed a late onset rash.

A 69-year-old obese, hypertense, diabetic man was previously followed for psoriasis and psoriatic arthritis; he was treated with Secukinumab 300 mg every 4 weeks for 2 years. About 25 days after the last dose of Secukinumab he had close contact with his father, who died of COVID-19 a few days later. In the following days the patient developed mild fever, asthenia, and ageusia, bringing high suspicion of SARS-CoV-2 infection. After consultation, as precaution, we advised him not to administer the next injection of Secukinumab. All symptoms, except ageusia, were resolved in 5 days. About 5 weeks later, he referred to us due to the rapid onset of a mild pruritic erythemato-oedematous morbilliform rash, rapidly spreading from arms to trunk and lower limbs; he also showed an initial flare-up of his psoriasis (Figure 1). The patient was otherwise asymptomatic and denied any recent drug intake; the last Secukinumab administration dated back to 2 months earlier. We collected a nasopharyngeal swab (FLOQSwab, Copan, Italy) in UTM (Universal Transport Medium, Copan, Italy) and two skin biopsies for histology and real time polymerase chain reaction (RT-PCR) viral detection. One skin biopsy was stored at −80°C in Biobank after treatment with RNAlater-ICE (ThermoFisher Scientific).

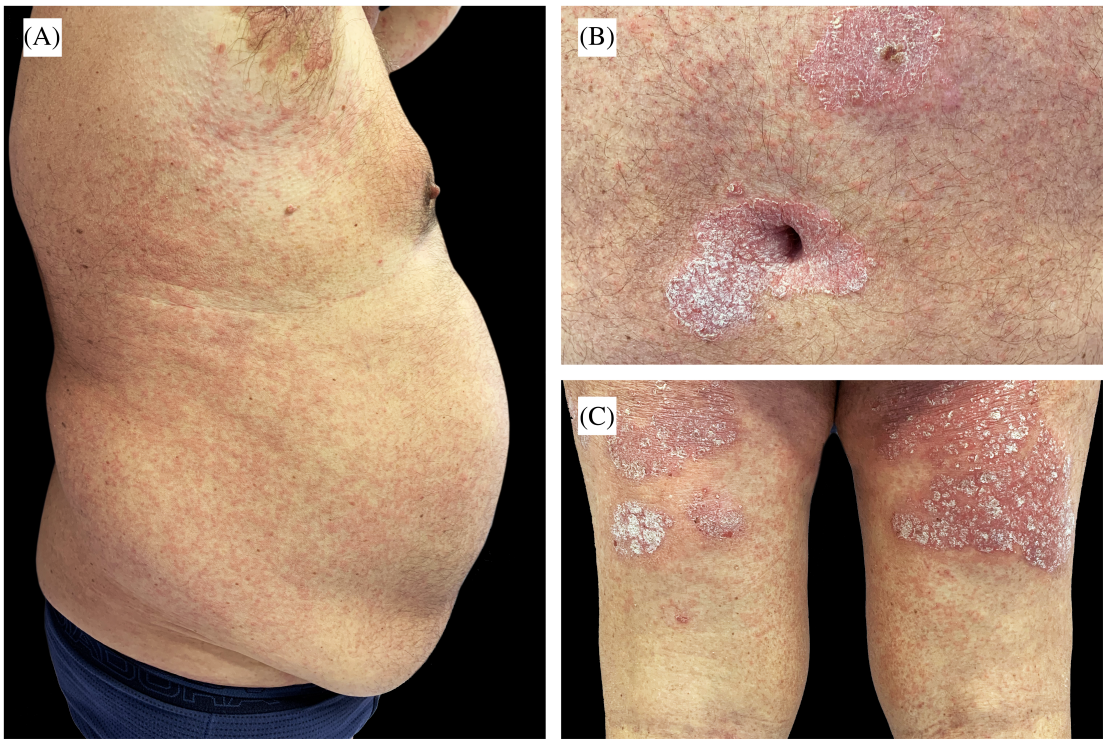

FIGURE 1 A, Erythemato-oedematous morbilliform rash scattered over abdomen and back. B,C, Details of psoriatic plaques associated with erythemato-oedematous papules

Subsequently it was digested with 50 μL of proteinase K (QIAGEN, Germany) and 200 μL of Tris-EDTA buffer solution (Sigma-Aldrich, Germany) for 24 hours at 56°C. After the purification of viral RNA from 200 μL of clinical samples, the detection of RdRp, E, and N SARS-CoV-2 viral genes were obtained by RT-PCR (GeneFinderTM COVID-19 Plus RealAmp Kit, Platform ELITe InGenius, ELITech Group, France) according to WHO protocol.[5] Nasopharyngeal swab was positive, RT-PCR on skin sample was negative. Histology revealed mild epidermal spongiosis with few necrotic keratinocytes, oedema of the papillary dermis, and moderate lymphocytic perivascular infiltration of the superficial plexus; no eosinophils were observed (Figure 2).

The skin rash disappeared spontaneously in about 7 days while psoriasis worsened. Only after double negative swab we allowed the patient to restart Secukinumab, with gradual improvement.

The patient developed a mild form of COVID-19, even though his age and comorbidities are most typically associated with poorer prognosis.[6] The rash occurred about 40 days after the systemic symptoms and approximately 8 weeks after the last Secukinumab dose. The rash appeared together with the recurrence of psoriasis. At the onset of the rash, the patient still had a positive swab, but the RT-PCR search for viruses in the skin was negative.

These observations seem consistent with the hypothesis of cytokine storm and Th17 involvement in the pathogenesis of COVID-19 and COVID-19-related cutaneous manifestations.[3,4,7] In our case, the COVID-19 clinical course was mild and therefore we can assume secukinumab does not increase risks for the patient and could support the hypothesis of the possible therapeutic use of IL-17 inhibitors in COVID-19.[7-9]

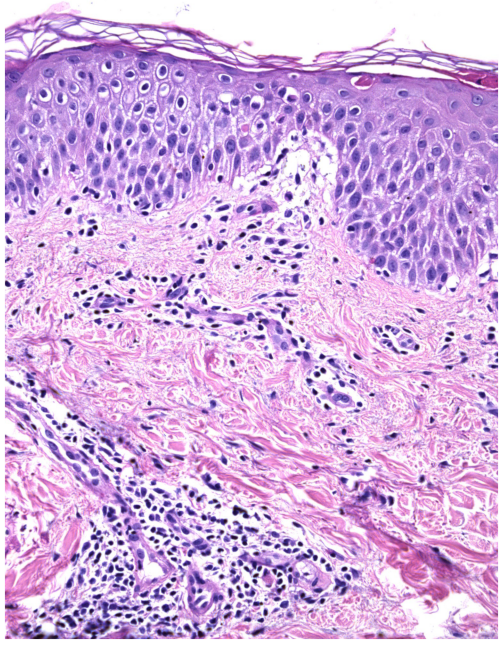

FIGURE 2 Hyperorthokeratosis, mild epidermal spongiosis, and moderate lymphocytic perivascular infiltration in the papillary and mild dermis (Hematoxylin-eosin stain; original magnification: ×20)

The mechanisms of COVID-19 cutaneous manifestation are still not well known.[1] The appearance of the manifestations 8 weeks after the last dose of the drug and the negativity of skin research of the virus with RT-PCR seem more consistent with the hypothesis of inflammatory pathogenesis than with the presence of peripheral viral particles. Further observations are needed to confirm these hypotheses.

ACKNOWLEDGMENT

The patient in this manuscript has given written informed consent to publication of his case details. We wish to express our gratitude to Dr. Fabio Maria Carugno and Dr. Matteo Alberto Mariani for their precious help and advice.

CONFLICT OF INTEREST

The authors have no conflict of interest to declare.

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