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Two cases of pityriasis rosea after the injection of coronavirus disease 2019 vaccine

To the editor,

The incidence of cutaneous manifestation in coronavirus disease 2019 (COVID-19) patients was around 20%.[1] Among the reported cutaneous reactions after the inoculation of COVID-19 vaccination till now, the most common reactions were delayed large local reactions, local injection site reactions, urticaria and morbilliform eruptions.[2] Pityriasis rosea (PR) was found to be one of the rare cutaneous symptoms caused by the COVID-19 vaccination.[2] Here, we report 2 cases of PR after the COVID-19 vaccination.

The first case was one 19-year-old man who came to the department of dermatology for 1-month history of pruritus papulosquamous lesion. His lesion appeared 2 days after the first dose injection of COVID-19 vaccine. This inactivated vaccine was produced by the Beijing Institute of Biological Products Company. His colleagues who had injected the same batch of vaccine had no similar symptoms till now. On physical examination, he had several oval pink-to-brown-coloured thin scaly plaques on the trunk and proximal extremities (Fig. 1a–c). Blood routine was normal. Besides, he completed 3 times of PCR test for COVID-19, and the latest test occurred the day before the visit. All negative results of the nucleic test indicated no infection of COVID-19. He was diagnosed with PR according to the classical clinical feature. After 1-week treatment of valaciclovir 300mg bid orally and mometasone furoate to inhibit itch when needed, the patient's manifestation had obvious improvement. He did not get the second dose of vaccination due to the eruption of PR after the first dose inoculation.

The second case was a 51-year-old man. He got the vaccination from the same company as the first patient as mentioned above. He developed itchy fusiform patches in the trunk 7 days after the second dose injection of COVID-19 vaccine and came to our department 3 days after the onset of the cutaneous symptom. He claimed slight similar lesions several days after the first dose inoculation without detailed picture. He reported no preceding disorder, no systemic discomfort, no cutaneous contacts or no new drug exposures. Physical examination indicated annular and oval lesion covering by thin scales across the neck, trunk, bilateral groins and proximal extremities, in a 'Christmas tree' pattern (Fig. 1d,e). During the process, the patient had no fever, cough or any other symptoms. Based on the diagnosis of PR, we treated him with ganciclovir 250 mg bid orally and got the improvement.

PR is a self-limited papulosquamous disorder associated with virus infection. Previous study reported the onset of PR several

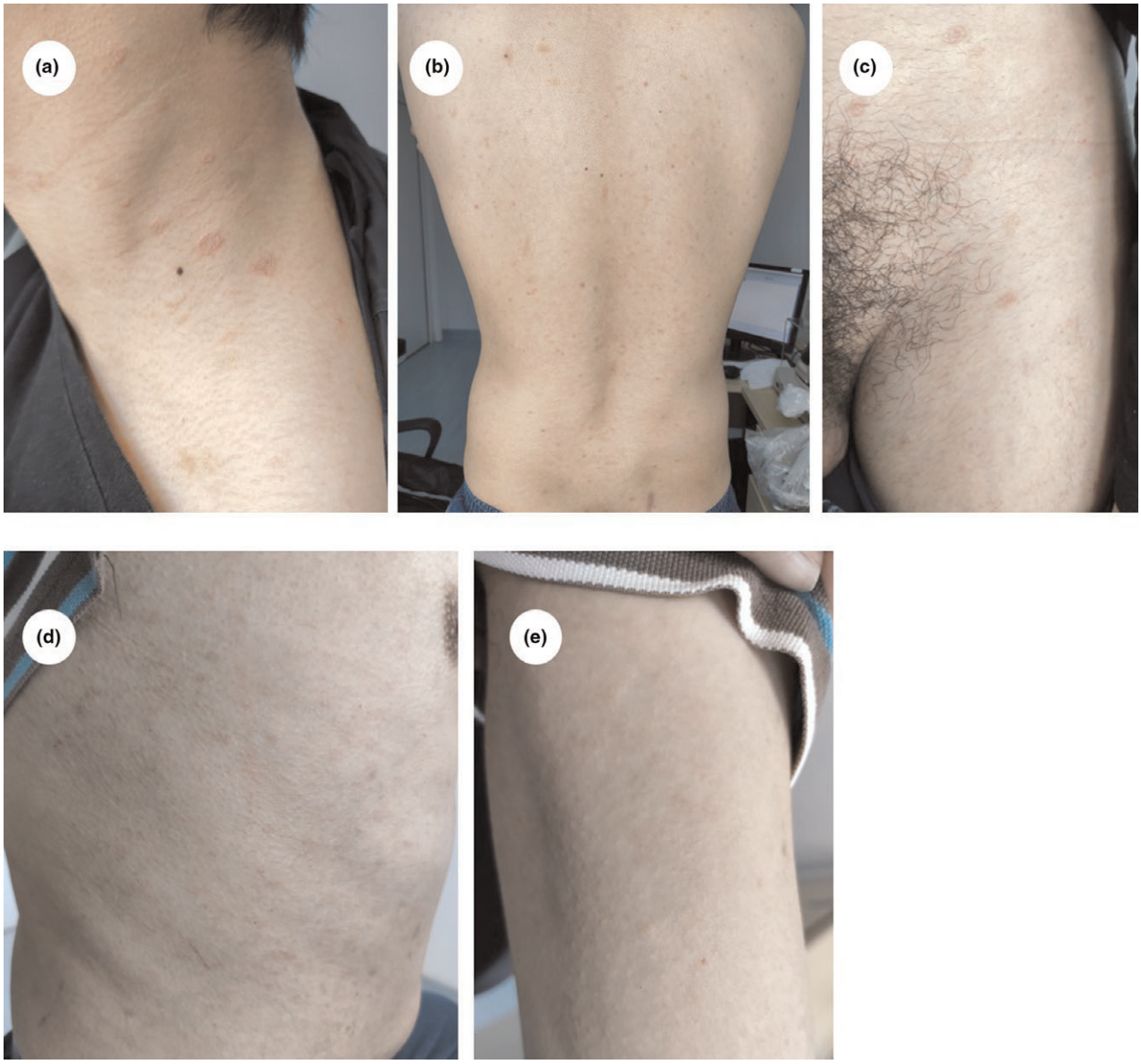

Figure 1 (a-c) Clinical manifestation of the 19-year-old man. Lesions locating on neck (a), trunk (b) and groins (c) were as shown. (d-e) Clinical manifestation of the 51-year-old man. Lesions on the trunk (d) and proximal upper limb (e) were displayed.

days or several weeks after the injection of Pfizer/ BioNTech (BNT162b2) and Moderna (mRNA-1273) COVID-19 vaccines in white people mostly.[3] It is still controversial to define this phenomenon as PR or PR-like eruption.[4] The described cases here are the first report of PR after the COVID-19 vaccination produced by the Beijing Institute of Biological Products Company in China. Due to the small size of samples and limitation of follow-up after both doses in the vaccination population, it is still hard to calculate the incidence or define the median time of PR onset. Besides, the disparities of reactions between different races are also important issues. This eruption of PR may be caused by the similar component of allergen between the inactivated vaccine and COVID-19 mediated by T cells.[5] It will be helpful for the dermatologist to be familiar with COVID-19 vaccine-related cutaneous manifestations.

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The patients in this manuscript have given written informed consent to publication of their case details.

Author contributions

LH took pictures and wrote the manuscript under the guidance of JZ and ZY. JZ organized the follow-up. All authors cared for the patient.

Conflict of interest

The authors state no conflict of interest.

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Reply to "Psoriasis exacerbation after COVID-19 vaccination: report of 14 cases from a single centre" by Sotiriou E *et al*.

Dear Editor,

We have read with great interest the article recently published by Sotiriou *et al*.[1] who reported 14 patients with psoriasis worsening after COVID-19 vaccination suggesting the possibility of the association between COVID-19 vaccines and psoriasis flares, especially in patients who do not receive any treatment for their psoriasis.

In our experience at the Dermatology Centre of the University of Naples Federico II, we observed 11 cases (8 male 72.7%, mean age 54.5 ± 8.9 years) of psoriasis exacerbation after COVID-19 vaccination with Pfizer mRNABNT162b2, Moderna mRNA-1273 or AstraZeneca-Oxford AZD1222 from February 2021 to July 2021 (Table 1). In line with Sotiriou et al., psoriasis flares were observed within 14 days from the vaccination (mean 8.5 ± 2.8 days) and mainly after the 2nd dose (81.8%). According to Sotiriou *et al*., plaque form is the most frequent clinical presentation (10/11, 90.9%). Moreover, psoriasis flare possibility does not seem to be linked to the type of COVID-19 vaccine (72.7% with mRNA technology vaccines and 27.3% with adenovirus vaccine).

Concerning the Psoriasis Area Severity Index (PASI) at the moment of clinical examination, our results are similar to Sotiriou et al. (10.4 ± 4.7 vs 9.8 ± 3.5). However, we believe that patients who experienced a less severe psoriasis flare after COVID-19 vaccination tend to self-medicate and do not seek medical attention. A comparison between Sotiriouet *et al*.'s data and ours are reported in Table 2.

Interestingly, differing from Sotiriou *et al*, we observed 6 cases (54.5%) of psoriasis flares due to COVID-19 vaccine in subjects under biologic treatment. Among these, topical calcipotriol/betamethasone combination and/or phototherapy were added to current biologic treatment in 4 cases, while switching biologic agent was necessary in the remaining 2 patients. Although literature reported that COVID-19 vaccine does not seem to induce psoriasis flare in patients under biologics,[2,3] we observed a small percentage of subjects that experienced this flare nevertheless being under biologic treatment. To note, we want to highlight that they represent a very limited number of patients considering that more than 1200 psoriatic patients attending our Department are being treated with biologics for psoriasis and that currently about of 60% of Italian population is vaccinated.[4]

As regards the treatment of the 5 remaining patients, biologic therapy or methotrexate was prescribed to 4 and 1 subjects after COVID-19 vaccine induced psoriasis worsening respectively.

Our results show a highly percentage of psoriatic flare in male patients (8/11, 72.7%) suggesting male sex as a potential predictive risk factor. However, these data may be influenced by the fact that the majority of psoriasis patients attending our centre is male (68.9%).

Previous concerns about the infectious risk of more severe COVID-19 infection in psoriatic subjects have been solved,[5] and the safety and effectiveness of COVID-19 vaccines has been showed,[6] also for these patients.[2,3]

In the literature, there are only few cases reporting the worsening of psoriasis after COVID-19 vaccine.[7–10] In our opinion, systemic treatment may reduce the risk of psoriasis flares after COVID-19 vaccination by the protection against the inflammatory process, which can cause the worsening of the disease. Hence, patients undergoing topical treatment for psoriasis have

