

LETTER

Pityriasis rubra pilaris in association with inactivated SARS-CoV-2 vaccine (CoronaVac)

Dear Editor,

Cutaneous reactions associated with CoronaVac vaccine have been registered in 11.3% of the patients. The most frequent reported reaction is urticaria, followed by exacerbation of chronic atopic diathesis and papulosquamous/pityriasiform lesions. Most of reactions improved within few weeks of onset without treatment.¹ However, there are no reports of the inactivated vaccine as a trigger of pityriasis rubra pilaris (PRP).

PATIENT 1

A 59-year-old otherwise healthy man presented with a 2-month history of a mildly pruritic widespread erythematous scaly rash that started 4 days after the CoronaVac second dose. Lesions started on the face, neck, and trunk; then spread to upper and lower limbs. He denied prior

SARS-CoV-2 infection or any adverse reaction following the first dose. Physical examination revealed widespread follicular-based erythematous hyperkeratotic papules coalescing into large orange-red scaly patches and plaques surrounded by islands of spared skin (Figure 1A,B); orange-red waxy palmoplantar keratoderma (Figure 1E), diffuse fine scale on the scalp, and malleolar edema. HIV test was negative. Skin biopsy was consistent with PRP. He was treated with high-potency topical corticosteroids (TC) with partial improvement.

PATIENT 2

A 56-year-old man with a history of vitiligo and diabetes presented with a widespread erythematous scaly rash of 1-month duration. The rash had started on the lower limbs and disseminated to the thighs,

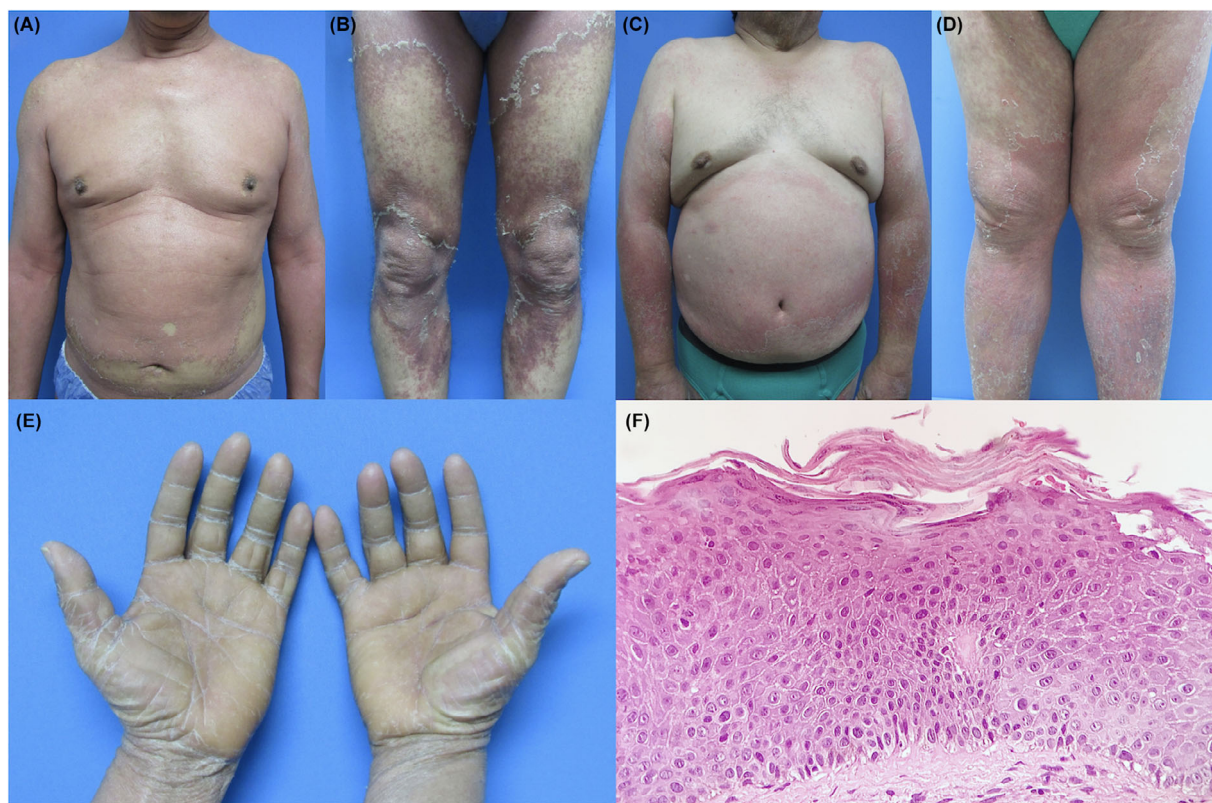


FIGURE 1 (A–D) Erythematous, scaly, well-demarcated, papules, and patches with a scaly border and islands of sparing. (E) Waxy, yellowish hyperkeratotic plaques on palms. (F) Histologic findings evidenced scoreboard parakeratosis alternated with orthokeratosis and acanthosis (hematoxylin–eosin; original magnification $\times 40$)

TABLE 1 Reported cases of SARS-CoV-2 vaccine and infection-related pityriasis rubra pilaris (PRP)

SARS-CoV-2 vaccine-related PRP						
Patient	Age	Sex	Vaccine type	vaccine dose	Time-to-onset	
1 ⁴	51 years	Male	mRNA vaccine (BNT162b2, Pfizer-BioNTech)	First (Worsening after 2nd dose)	3 days	
2 ⁶	63 years	Female	Recombinant adenoviral vector (Vaxzevria, AstraZeneca)	First	9 days	
3 ⁷	72 years	Male	Recombinant adenoviral vector (Covishield, AstraZeneca)	First (No recurrence after 2nd dose)	3 weeks	
4 ⁵	62 years	Female	mRNA vaccine (mRNA-1273, Moderna)	First	5 days	
5 ⁵	82 years	Female	mRNA vaccine (BNT162b2, Pfizer-BioNTech)	First	7 days	
6 ^a	59 years	Male	Inactivated virus vaccine (CoronaVac, Sinovac Life Sciences)	Second	4 days	
7 ^a	56 years	Male	Inactivated virus vaccine (CoronaVac, Sinovac Life Sciences)	Second	4 weeks	
SARS-CoV-2 infection-related PRP						
Patient	Age	Sex			Time-to-onset	
1 ²	7 years	Male	-	-	NR	
2 ³	32 months	Male	-	-	2 months	

Abbreviations: PRP, pityriasis rubra pilaris; mRNA, messenger RNA; NR, not reported.

^aPresent cases.

chest, abdomen, and arms. He received the CoronaVac second dose 30 days prior to the appearance of the lesions. Adverse reactions following the first dose were denied. Physical examination revealed large, confluent well-demarcated, erythematous, scaly papules and patches with scaly border and islands of sparing over the trunk, upper and lower limbs and waxy, yellowish hyperkeratotic plaques on palms and soles (Figure 1C,D). HIV test was negative. Skin biopsy was consistent with PRP (Figure 1F). Treatment was initiated with high-potency TC with good response.

PRP is a papulosquamous inflammatory dermatosis characterized by hyperkeratotic follicular papules that coalesce into red–orange scaly plaques with conspicuous well-demarcated islands of spared skin, and waxy palmoplantar keratoderma. Age distribution is bimodal, with peaks in the first and fifth decades of life. Etiology is unknown, although gene variations in *CARD14* have been implicated; however, most cases are acquired. Reported associations include bacterial and viral infections, including SARS-CoV-2 infection^{2,3}; drugs, autoimmune diseases, and malignant neoplasms.

mRNA^{4,5} and recombinant adenoviral vector^{6,7} SARS-CoV-2 vaccines have also been previously reported as triggers of PRP (Table 1). Other vaccines known to precipitate PRP are diphtheria–pertussis–tetanus, measles–mumps–rubella, oral poliovirus, and influenza vaccines.⁸

Although causality may not be demonstrated by these case reports, development of the lesions was temporally associated with vaccination. These cases evidence a potential side effect related to CoronaVac vaccine, highlighting the importance of inquiring about vaccination history during anamnesis of patients with new onset of PRP cutaneous lesions.

ACKNOWLEDGMENTS

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

CONFLICT OF INTERESTS







All authors declare no conflicts of interest.

AUTHOR CONTRIBUTIONS

Lucía T. Fernández: review and editing (equal), writing – original draft (lead). **Daniela M. Pérez-Garza:** review and editing (equal), writing – original draft. **Alejandra de la O-Escamilla:** review and editing (equal). **Luis A. Yamallel-Ortega:** review and editing (equal). **Adrian Cuellar-Barboza:** conceptualization (supporting). **Jorge Ocampo-Candiani:** visualization, supervision, conceptualization (supporting). **Sonia Chavez-Alvarez:** conceptualization (lead), supervision.

DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available from the corresponding author upon reasonable request

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