LETTER TO THE EDITOR

Acute postinfectious pityriasis rubra pilaris as a cutaneous manifestation in COVID-19: a case report and its dermoscopic features

Editors

Coronavirus disease 2019 (COVID-19) is an ongoing global pandemic caused by the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2). There have been many reports of COVID-19 skin manifestations in the literature; the clinical spectrum is wide and includes urticarial rash, confluent erythematous/maculopapular/morbilliform rash, papulovesicular exanthem, chilblain-like acral pattern, livedo reticularis/racemosa-like pattern, purpuric ‘vasculitic’ pattern. According to our best knowledge, this report is a first described case of pityriasis rubra pilaris (PRP) in a COVID-19 patient.

A 7-year-old male child was admitted to our outpatient clinic presenting generalized erythematous skin lesions. Cutaneous examination revealed generalized well-demarcated, large reddish-orange plaques and keratotic follicular papules with islands of uninvolved skin mainly on the face, trunk and limbs. Keratosis of the palms and soles was also present (Figs 1a, b and 2a). The body surface area involvement was approximately 80%. No other abnormalities were observed. Birth history, medical history, surgical history and family history were unremarkable. The patient’s mother claimed that the disease began with a diffuse fine scale on the scalp and over time extended to the whole body. Appearance of skin lesions was preceded by a bout of infection with fever.

Real-time polymerase chain reaction nasopharyngeal swab for SARS-CoV-2 was performed with positive result. Otherwise, all routine examination findings and laboratory parameters were

Figure 1 (a and b) Initial clinical picture with orange hyperkeratosis on the palms and soles. (c and d) Improvement after 3 months of acitretin and emollient therapy.
within normal ranges. A 4-mm punch skin biopsy was sent for histopathological examination and demonstrated acanthosis, keratosis with parakeratotic foci between orthokeratosis, mild perivascular lymphocytic inflammation and epidermal spongiosis. Dermoscopy showed white scale, scattered dotted vessels and orange structureless areas over a reddish background (Fig. 2b). Based on clinical presentation, dermoscopy and histopathological examination, the diagnosis of acute postinfectious PRP was made. Acitretin 0.5 mg/kg/day and emollient therapy were started with good clinical improvement regarding the degrees of erythema and scaling after 3 months of treatment (Fig. 1c and d).

PRP is an uncommon chronic inflammatory skin disease of unknown aetiology, which comprises 6 subtypes segregated by age, clinical course and prognosis: type I (classical adult), type II (atypical adult), type III (classical juvenile), type IV (circumscribed juvenile), type V (atypical juvenile) and type VI (type I and HIV positive). PRP affects adults and children of all ages, with two common peaks: the first one in childhood (1–10 years of age) and the second one in adulthood (50–60 years of age). PRP is characterized by follicular keratotic papules and red-to-orange plaques. Furthermore, palmoplantar keratoderma, erythema with micaceous scale of the face and scalp, subungual hyperkeratosis and nail thickening can be found in patient with PRP. Classical juvenile type III PRP affects children between 5–10 years of age and represents approximately 10% of all PRP cases. In 1983, Larrègue et al. published a series of cases of PRP following infection in children and proposed a new subgroup acute postinfectious PRP. This form is a variant of type III PRP characterized by: (I) no family history, (II) occurred after the first year of life, (III) an acute course preceded by symptoms of an infection, (IV) no clinical or laboratory abnormalities except those due to the initial infection, (V) scarlatiniform erythema followed by follicular papules with appearance of classical juvenile PRP weeks later and (VI) good prognosis but resolution may be slow, and no tendency toward recurrence. In the literature, there are a few reports describing connections between PRP and both bacterial and viral infections. Clinical features may resemble other superantigen-mediated diseases, such as scarlatiniform rash, staphylococcal scalded skin syndrome, toxic shock syndrome or Kawasaki disease.

In conclusion, the association between COVID-19 and PRP may be coincidental, nevertheless viral infections have been proposed to be a triggering event for PRP pathogenesis. Further research is needed to confirm the correlation between SARS-CoV-2 infection and PRP.
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The patients in this manuscript have given written informed consent to publication of their case details.

Conflicts of interest
The authors have no conflicts of interest to declare.

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References
1 Genovese G, Moltrasio C, Berti E, Marzano AV. Skin manifestations associated with COVID-19: Current knowledge and future perspectives. Dermatology 2021; 237: 1–12.
2 Ringin SA, Daniel BS. Treatment modalities for pityriasis rubra pilaris subtypes: a review. J Dermatolog Treat 2020. https://doi.org/10.1080/09546634.2020.1729954.
3 Roenneberg S, Biedermann T. Pityriasis rubra pilaris: algorithms for diagnosis and treatment. J Eur Acad Dermatol Venereol 2018; 32: 889–898.
4 Larregue M, Champion R, Bressieux JM, Laidet B, Lorette G. Acute pityriasis rubra pilaris in childhood. Four cases. Ann Dermatol Venereol 1983; 110: 221–228.
5 Ferrández-Pulido C, Bartralot R, Bassas P et al. Pityriasis rubra pilaris aguda postinfecciosa: Una dermatosis mediada por superantígenos. Actas Dermosifiliogr 2009; 100: 706–709.
6 Betlloch I, Ramón R, Silvestre JF, Carnero L, Albares MP, Bañuls J. Acute juvenile pityriasis rubra pilaris: A superantigen mediated disease? Pediatr Dermatol 2001; 18: 411–414.

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