

Correspondence

Viral exanthema in the Americas during the SARS-CoV-2 pandemic infection: dengue or COVID-19?

Dear Editor,

The SARS-CoV-2 pandemic is currently spreading in the Americas including the West Indies.¹ Clinical characteristics of the emerging associated disease (i.e., COVID-19) are not

completely known. Skin manifestations occurred in 0.2 to 20% of cases among the literature series. They mostly consisted of maculopapular, vesicular lesions, and chilblains, of which the association with the virus is still debated.²⁻⁵ Viral exanthema, a symptom of major concern in the Americas in a context of concomitant dengue endemic/epidemic, has been poorly described.²⁻⁴

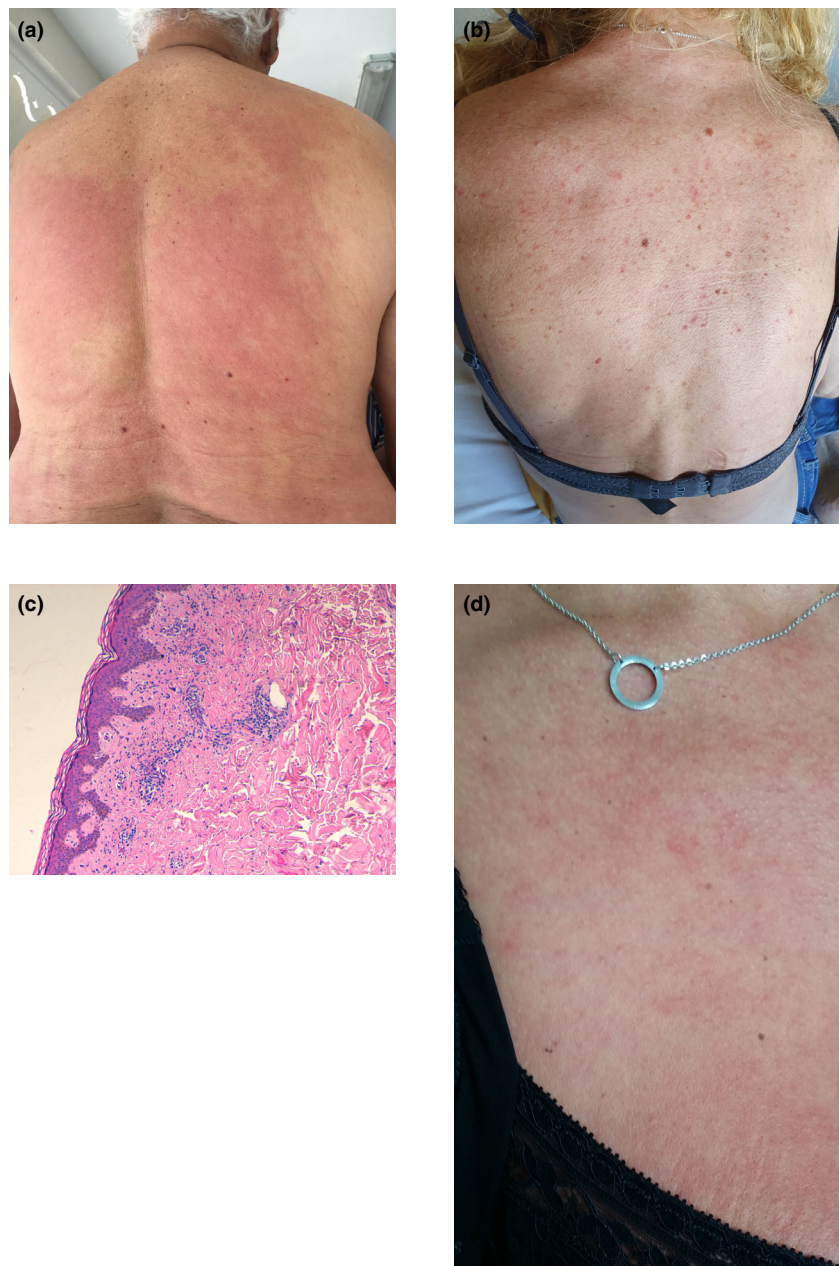


Figure 1 Clinical patterns of COVID-19 exanthema: (a) fixed papular eruption with 24-hour delayed pruritus in a 71-year-old male patient with mild COVID-19; (b) fixed macular eruption with small scattered targets as previously described in the literature (ref. 2,3); (c) histological examination of the skin biopsy specimen of the lesional skin of the male patient showing a mild lymphocytic infiltrate of the upper dermis (Hematoxylin and eosin, $\times 20$); and (d) Dengue exanthema in a 44-year-old woman referred for suspected COVID-19 on the basis of the following clinical symptoms: cough, coryza, headache, myalgia. RT-PCR was negative for SARS CoV-2, and dengue serodiagnosis was positive. Typical macular pattern with healthy skin intervals is like a checkerboard

This retrospective study was conducted between 10/03/2020 and 10/04/2020, the time of the COVID-19 first peak on the island of Guadeloupe, the greater French overseas department within the West Indies (400,000 inhabitants, mostly black Caribbean). During this period a dengue epidemic was also ongoing. Our aim was to assess the clinical characteristics of COVID-19 exanthema. Patients referred to our department with suspicion of COVID-19 and who presented exanthema were included if the diagnosis of COVID-19 was confirmed by RT-PCR with concomitant negative results for dengue virus infection. Clinical patterns of COVID-19 exanthema were described and compared with those of non-included patients presenting exanthema who had a negative SARS-CoV-2 RT-PCR and a positive serodiagnosis of dengue.

During the study period, four Caucasian adult patients fulfilled the inclusion criteria, and four other Caucasian patients were diagnosed with exanthema-related dengue infection. For the four COVID-19 patients (i.e., one man and three women, min age: 39 years, max age: 71 years), their COVID-19 was not severe. Clinical symptoms (i.e., cough and/or ageusia without any fever except in one case) preceded the eruption for 2–8 days. Exanthema was fixed, papular ($n = 2$), or macular ($n = 2$) primarily involving the trunk (Fig. 1a,b). Interestingly, pruritus was associated in all four cases and was delayed from 1 to 2 days ($n = 3$) or longer. Skin biopsy specimen collected on a lesional area, in order to eliminate a drug-induced reaction (male patient), showed a perivascular lymphocytic infiltrate in the dermis diagnostically compatible with viral exanthema (Fig. 1c). RT-PCR on lesional skin was SARS-CoV-2 negative. Exanthema resolved spontaneously in 1–10 days. The comparison between patients with COVID-19 and dengue revealed that dengue exanthema always had the characteristic macular pattern with healthy skin intervals like a checkerboard well known by clinicians of endemic countries (Fig. 1d). Several usual COVID-19 systemic symptoms, that is, cough, dysesthesia, and even anosmia, were reported by dengue patients whose exanthema could also be itchy, but ageusia specifically characterized the COVID-19 patients.

Discussion

Given that the Unit of Dermatology was part of the Department of Infectious Diseases, which was the only one site able to perform the RT-PCR nasal test for SARS-CoV-2 during the study period, this series includes all the cases of related exanthema seen in Guadeloupe at this time. Concomitantly, 145 patients were tested positive for SARS-CoV-2 so that the prevalence of exanthema can be evaluated to 2.7% in accordance with the rate of COVID-19 eruptions reported in the literature (i.e., 0.2–20%).

Despite the small size of our series, our results, focused on the viral exanthema, reveal several discriminating clinical features which might be useful in cases of concurrent outbreaks

given the challenge to clinically distinguish dengue and COVID-19.⁴ The absence of the SARS-CoV-2 genome in the skin sample does not exclude a viral implication in the pathogenesis of the exanthema according to recent conflicting data from immunohistochemistry and ultrastructural analyses.⁴ Moreover a paraviral phenomenon can be implicated. Otherwise, the underrepresentation of Afro-Caribbeans in this series may possibly be due to the lower visibility of exanthema in skin of color. If not, it raises the controversial question of the low frequency of such viral manifestations in this ethnicity.⁵

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IRB approval: According to the French law, given the retrospective character of the study, it was only required to be approved by the Ethics Committee for Noninterventional Research of Guadeloupe University Hospital (registered number: A18-20_04_30).

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References

- de Oliveira AR. Covid-19: Concerns rise as cases expand rapidly in South America. *BMJ* 2020; **369**: m1926.
- Galván Casas C, Català A, Carretero Hernández G, *et al*. Classification of the cutaneous manifestations of COVID-19: a rapid prospective nationwide consensus study in Spain with 375 cases. *Br J Dermatol* 2020; **183**: 71–77.
- Joob B, Wiwanitkit V. COVID-19 can present with a rash and be mistaken for dengue. *J Am Acad Dermatol* 2020; **82**: e177.

- 4 Colmenero I, Santonja C, Alonso-Riaño M, *et al.* SARS-CoV-2 has not been detected directly by electron microscopy in the endothelium of chilblain lesions: reply from authors. *Br J Dermatol* 2020; **183**: 729–737. <https://doi.org/10.1111/bjd.19579>
- 5 Cline A, Berk-Krauss J, Keyes Jacobs A, *et al.* The underrepresentation of "COVID toes" in skin of color: an example of racial bias or evidence of a tenuous disease association? *J Am Acad Dermatol* 2020; S0190-962(20): 32913–32923.