Acute Generalized Exanthematous Pustulosis Associated With a COVID-19 Infection

To the Editors:

Acute generalized exanthematous pustulosis (AGEP) is a rare, severe cutaneous reaction manifested by an acute onset of small sterile pustules over an erythematous skin, accompanied by fever and leukocytosis. Systemic organ involvement with hepatic, renal, or pulmonary dysfunction may be present in severe cases.[1,2] AGEP is mainly triggered by drugs in most cases, but there have been few reports of AGEP associated with viral infections.[3–5] Herein, we report a case of nondrug-related AGEP in a pediatric patient with coronavirus disease 2019 (COVID-19) infection, which was initially considered as multisystem inflammatory syndrome in children (MIS-C).

A previously healthy 10-year-old female presented with a 2-day duration of fever and erythematous rash that first appeared on her face and neck and then rapidly spread to her trunk and extremities. Five days before admission, she had been diagnosed with COVID-19 infection with a positive severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) real-time polymerase chain reaction test from nasopharyngeal swab. The patient was afebrile for the first 3 days but had sore throat, cough and rhinorrhea. She did not receive any medications either before or during COVID-19 infection. On admission, she had a body temperature of 38.9 °C, heart rate of 126/min, respiratory rate of 28/min, blood pressure of 90/60 mm Hg and oxygen saturation of 94% in ambient air. Physical examination revealed red and cracked lips and strawberry tongue (Fig. 1A) and a diffuse erythematous rash on her trunk and extremities. Laboratory studies showed a white blood cell count of 23×10^9/L (83% neutrophils); C-reactive protein of 180 mg/L; erythrocyte sediment rate of 48 mm/h; fibrinogen of 498 mg/dL; alanine aminotransferase of 96 U/L and gamma-glutamyl transferase of 88 U/L. Troponin level and echocardiographic examination were found to be normal. Chest radiography was unremarkable. The patient was hospitalized with a prediagnosis of MIS-C based on the presence of fever, elevated inflammatory markers, multisystem involvement (mucocutaneous and gastrointestinal) and current SARS-CoV-2 infection. Anti-SARS-CoV-2 total antibody level was found to be negative. She developed numerous small nonfolicular pustules on her trunk and extremities (Fig. 1B) within 24 hours after hospitalization. Blood, throat and pustule cultures were all negative. Serologic evaluation for viruses (Epstein-Barr virus, cytomegalovirus and parvovirus B19) and antistreptolysin O titer were also negative. A skin biopsy was performed from her trunk, and subcorneal pustular formation and papillary dermal edema with neutrophilic infiltration were observed histopathologically. The diagnosis of AGEP was made based on the morphology of skin lesions, and the laboratory and histopathological findings, which were consistent with a definite diagnosis by the EuroSCAR study group.[2] She was treated with topical corticosteroids. Her fever subsided 5 days after hospital admission. The pustular eruption was followed by desquamation and completely resolved within 10 days.

FIGURE 1. Red and cracked lips and strawberry tongue (A) and diffuse erythema with hundreds of pustules on the patient's trunk (B).

In conclusion, this case highlights that COVID-19 infection may be one of the triggers of AGEP. Severe cases of AGEP may present with systemic organ involvement, resulting in a clinical picture similar to MIS-C. Further research is needed to define possible association between AGEP and COVID-19 infection.

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REFERENCES

1. Szatkowski J, Schwartz RA. Acute generalized exanthematous pustulosis (AGEP): a review and update. *J Am Acad Dermatol*. 2015;73:843–848.
2. Sidoroff A, Halevy S, Bavinck JN, et al. Acute generalized exanthematous pustulosis (AGEP) – a clinical reaction pattern. *J Cutan Pathol*. 2001;28:113–119.
3. Hayashi E, Imanishi H, Tateishi C, et al. Acute generalized exanthematous pustulosis associated with human parvovirus B19 infection in an adolescent. *J Dermatol*. 2021;48:e236–e237.
4. Haro-Gabaldón V, Sánchez-Sánchez-Vizcaino J, Ruiz-Avila P, et al. Acute generalized exanthematous pustulosis with cytomegalovirus infection. *Int J Dermatol*. 1996;35:735–737.
5. Feio AB, Apetato M, Costa MM, et al. Pustulose exantemática generalizada aguda por vírus Coxsackie B4 [Acute generalized exanthematous pustulosis due to Coxsackie B4 virus]. *Acta Med Port*. 1997;10:487–491.

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