

## Images in Clinical Tropical Medicine

### Papular-Vesicular Rash in COVID-19

Vijayasankar Palaniappan,\* Keerthi Subramaniam, and Kaliaperumal Karthikeyan

Department of Dermatology, Venereology and Leprosy, Sri Manakula Vinayagar Medical College and Hospital, Pondicherry, India

A 30-year-old man presented with multiple, bilaterally symmetrical, erythematous papular-vesicular lesions distributed over his neck, anterior trunk, posterior trunk, and upper arms (Figures 1 and 2). Face, mucosa, and lower limbs were spared. The skin lesions were mildly pruritic, appeared 4 days after the onset of fever, cough, and malaise. He had a history of varicella in childhood. His complete blood count, liver and kidney parameters, and C-reactive protein were within normal limits. IgM antibodies were negative for varicella infection. Tzanck smear, carried out from a vesicle, showed many acantholytic cells with lymphocytes. Giant cells suggestive of herpes simplex virus infections were not found (Figure 3). SARS-CoV-2 real-time polymerase chain reaction of his nasopharyngeal swab showed COVID-19 positivity. A diagnosis of varicella-like exanthem secondary to COVID-19 was made. The patient was advised home isolation and managed conservatively. The patient's skin and systemic symptoms subsided within 1 week.

The vesicular lesions in COVID-19 are uncommon, typically seen in middle-aged patients, associated with intermediately severe disease. The prevalence of vesicular rash ranges from 3.77% to 15% in this disease.<sup>1</sup> The cytokine storm secondary to immune hyperresponse, and direct cytopathic effect of SARS-CoV-2 on endothelium of dermal blood vessels, may form the pathophysiological basis of vesicular lesions.<sup>2</sup>



FIGURE 2. A close-up view of the rash. This figure appears in color at [www.ajtmh.org](http://www.ajtmh.org).

The rash usually appears 3 days after the onset of systemic symptoms and disappears by 8 days. The characteristic features of this vesicular exanthem are mild/absent pruritus, frequent trunk involvement, small size, scattered distribution of lesions, and heals without scar.<sup>3</sup> Two morphological patterns of this rash are 1) widespread polymorphic pattern—more common, consisting of small papules, vesicles, and pustules,



FIGURE 1. Multiple erythematous papular-vesicular lesions over neck, anterior trunk, and posterior trunk. This figure appears in color at [www.ajtmh.org](http://www.ajtmh.org).

\* Address correspondence to Vijayasankar Palaniappan, Department of Dermatology, Venereology and Leprosy, Sri Manakula Vinayagar Medical College and Hospital, Pondicherry, 605107, India. E-mail: [vijayasankarpalaniappan@gmail.com](mailto:vijayasankarpalaniappan@gmail.com)

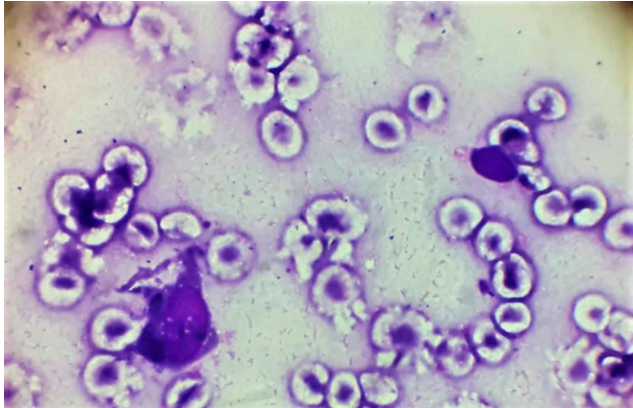


FIGURE 3. Tzanck smear of a vesicle showed many acantholytic cells and a lymphocyte. This figure appears in color at [www.ajtmh.org](http://www.ajtmh.org).

and 2) localized pattern—less prevalent, consisting of monomorphic lesions over anterior or posterior trunk.<sup>4</sup>

The histology shows dyskeratosis, ballooning multinucleated cells, and scanty necrotic keratinocytes with lymphocytic satellitosis. Dermal and vessel wall edema, perivascular lymphocytic infiltrates, and red blood cells (RBCs) extravasation are the other findings seen.<sup>5</sup>

Varicella-like exanthem is a COVID-19-specific rash whose identification is helpful in the clinical diagnosis.<sup>1</sup>

Received May 24, 2021. Accepted for publication June 17, 2021.

Published online July 16, 2021.

Authors' addresses: Vijayasankar Palaniappan, Keerthi Subramaniam, and Kaliaperumal Karthikeyan, Department of Dermatology, Venereology and Leprosy, Sri Manakula Vinayagar Medical College and Hospital, Pondicherry, 605107, India, E-mails: [vijayasankarpalaniappan@gmail.com](mailto:vijayasankarpalaniappan@gmail.com), [subramaniam.keerthi@gmail.com](mailto:subramaniam.keerthi@gmail.com), and [karthikderm@gmail.com](mailto:karthikderm@gmail.com).

This is an open-access article distributed under the terms of the Creative Commons Attribution (CC-BY) License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.

## REFERENCES

1. Singh H, Kaur H, Singh K, Sen CK, 2021. Cutaneous manifestations of COVID-19: a systematic review. *Adv Wound Care (New Rochelle)* 10: 51–80.
2. Criado PR, Abdalla BMZ, de Assis IC, van Blaricum de Graaff Mello C, Caputo GC, Vieira IC. 2020. Are the cutaneous manifestations during or due to SARSCoV-2 infection/COVID-19 frequent or not? Revision of possible pathophysiologic mechanisms. *Inflamm Res* 69: 745–756.
3. Marzano AV et al., 2020. Varicella-like exanthem as a specific COVID-19-associated skin manifestation: multicenter case series of 22 patients. *J Am Acad Dermatol* 83: 280–285.
4. Fernandez-Nieto D et al., 2020. Clinical and histological characterization of vesicular COVID-19 rashes: a prospective study in a tertiary care hospital. *Clin Exp Dermatol* 45: 872–875.
5. Gianotti R, Zerbi P, Dodiuk-Gad RP, 2020. Clinical and histopathological study of skin dermatoses in patients affected by COVID-19 infection in the northern part of Italy. *J Dermatol Sci* 98: 141–143.