

Follicular eruption as a cutaneous manifestation in COVID-19

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SUMMARY

A 50-year-old man presented to our dermatology clinic with itchy skin rash. The rash began 5 days after systemic symptoms appeared such as mild fever and mild dyspnoea. The rashes were a characteristic of follicular eruption, which started on his stomach and spread all over his body. After a thorough evaluation, he was diagnosed with COVID-19 and was started on COVID-19 regimens. Skin lesions disappeared on the ninth day of treatment. Our findings contribute to the growing awareness of dermatological manifestations in patients with COVID-19.

BACKGROUND

Severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) is known to be the virus that induces the infectious disease called COVID-19.¹ The clinical spectrum of COVID-19 varies greatly, ranging from asymptomatic or mild symptoms to critical fatal forms with respiratory failure or multi-organ dysfunction. The infection primarily affects the epithelium of the airways and patients mainly present with fever and respiratory symptoms. However, a wide variety of signs and symptoms can occur, including cutaneous manifestation.²

From the start of this global pandemic, the cases of infected patients have continued to increase rapidly and the primary focus on the severe symptoms of patients could forego systematic skin examinations. As a result, the incidence of cutaneous lesions is likely to have been underestimated. Some cutaneous manifestations may have been neglected due to their short duration or the minimal respiratory symptoms. The difficulty in determining the actual prevalence of COVID-19-associated skin manifestations has also been linked to the fact that in some countries only patients with respiratory illness or hospitalisation are screened.³ Currently, cutaneous symptoms of COVID-19 are gaining more attention.¹ At present, there are at least 150 case reports and reviews about cutaneous manifestations of COVID-19.⁴

Herein, we add a report of cutaneous manifestations on a patient confirmed with COVID-19 who developed follicular eruptions 5 days after the onset of fever with slight dyspnoea. Our findings contribute to the growing awareness of dermatological manifestations in patients with COVID-19.

CASE PRESENTATION

A 50-year-old previously healthy man suffered mild fever and slight dyspnoea. He had previously

entered a red area known for COVID-19 transmission and was rapid tested with positive result. He did self-quarantine at home, while waiting for confirmation of COVID-19 from the results of the nasopharyngeal swab testing used in reverse transcription PCR (RT-PCR) examination. On day 5 after systemic symptoms, he experienced skin lesions which included itchy, stinging feelings, with a burning sensation. The skin lesions that started on his stomach spread all over his body, extremities, neck and face. The clinical manifestation was suggestive of follicular eruption (figure 1A–C). He denied taking any medications before the skin eruptions and had no history of drug allergy. He experienced urticaria when feeling cold, lasting approximately 1 hour.

When the nasopharyngeal swab for the RT-PCR examination for COVID-19 DNA strain gave positive result, the patient was then hospitalised. Skin examination revealed erythematous follicular papules on his arms, neck, back and stomach. His face and lips were xerotic. Other physical examinations were normal.

INVESTIGATIONS

His chest X-rays on admission showed minimal infiltrate in bilateral paracardial. Laboratory examination showed haemoglobin 153 g/L, leucocyte $9.7 \times 10^9/L$, eosinophil 3.8%, basophil 0.2%, neutrophil 60.4%, lymphocyte 29.2%, monocyte 6.4%, haematocrit 43%, erythrocyte $4.9 \times 10^6/\mu L$, thrombocyte $212\,000/\mu L$, glucose 67 mg/dL, urea 28.1 mg/dL, creatinine 0.89 mg/dL, uric acid 7.3 mg/dL, total cholesterol 238 mg/dL, triglycerides 178 mg/dL, aspartate aminotransferase 30.1 U/L and alanine aminotransferase 32.1 U/L. The patient was treated in a regional hospital with limited facilities and protective equipment availability; therefore, skin biopsy was not performed.

DIFFERENTIAL DIAGNOSIS

During the examination, we considered cutaneous drug eruption as a differential diagnosis, but our patient had cutaneous symptoms before he was given treatment. The patient denied taking any other medications and had no known drug allergy. Hence, follicular eruption induced by medication could be ruled out. Since the patient experienced urticaria when feeling cold, we also considered cold urticaria as a differential diagnosis. The secondary cold-induced urticaria has been reported to be associated with both bacterial and viral infections (mononucleosis⁵ and HIV⁶). However, the



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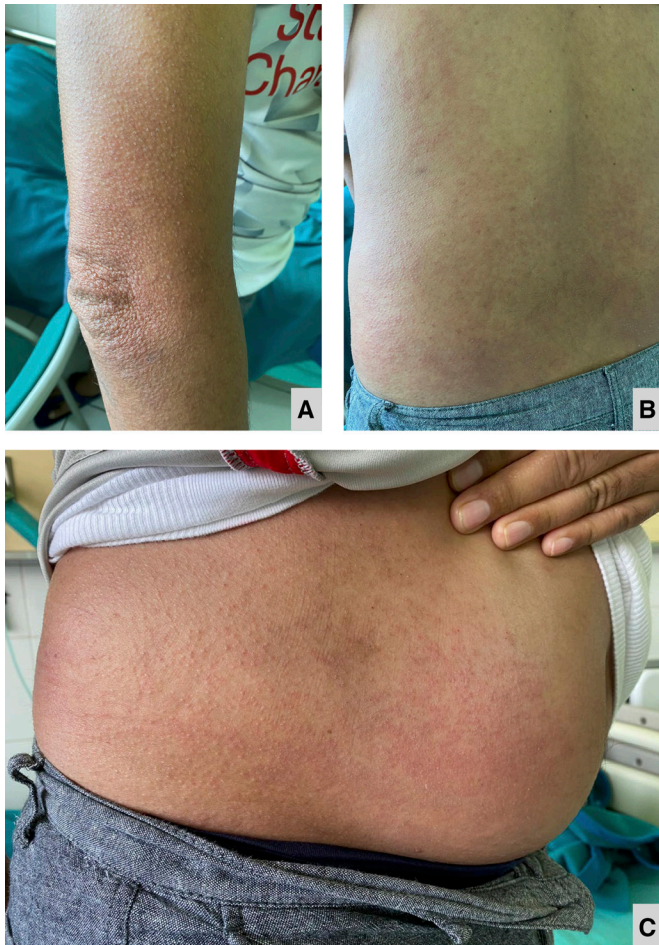


Figure 1 (A–C) Erythematous follicular papules on arms, back and stomach.

cold urticaria experienced by our patient lasted approximately 1 hour, and the follicular eruption lasted for 9 days. Hence, cold urticaria could be ruled out. Our patient experienced cutaneous symptoms after the onset of systemic symptoms and confirmation of COVID-19 infection. These lesions lasted for 9 days; therefore, we thought that the follicular eruption may represent as a cutaneous manifestation of COVID-19.

TREATMENT

Treatment for COVID-19 according to local protocol treatment was then administered with azithromycin 1×500 for 3 days, hydroxychloroquine 2×200 mg for 5 days, oseltamivir 2×75 mg for 5 days, paracetamol when needed 3×500 mg, Zegavit 1×1 and Folavit 1×1.

OUTCOME AND FOLLOW-UP

On day 9, the skin lesions had improved and disappeared following the improvement of general condition of patient.

DISCUSSION

Papular eruption can be caused by drugs and bacterial or viral infections. It is associated with a viral or bacterial infection when accompanied by fever, headache, muscle pain and respiratory disorder. Many infections could induce papular eruption, including mononucleosis, measles, scarlet fever, hand-foot-mouth disease, herpes, hepatitis B, hepatitis C, Zika virus, Ebola, SARS-CoV-2 and HIV.⁷ The cutaneous manifestations of

patients with COVID-19 have been increasingly reported. Skin lesions could be developed at the onset or after hospitalisation. Skin rash mainly involved the trunk, accompanied with low or absence of itching sensation.⁸ The pathophysiology is unknown, but other systemic viral infection could induce secondary skin lesions due to the viraemic stage of the disease. When the viral particles localise in skin vessels, they trigger leucocyte diapedesis to the skin. The accumulation of leucocytes will induce inflammation and formation of papules.^{7,8}

We present a case of COVID-19 patient with follicular eruption. The skin rash presented 5 days after having systemic symptoms such as mild fever and mild dyspnoea. The rash began on his stomach before spreading all over the trunk of his body, including extremities, neck and face. The skin lesions were itchy, stinging, with burning sensation. The nasopharyngeal swab for the RT-PCR examination for COVID-19 DNA strain gave a positive result. Hence, we concluded that the skin rash is a manifestation of COVID-19.

Based on the results of a prospective study in Spain, there are five clinical patterns recognised, including (1) acral areas of erythema with vesicles or pustules, (2) other vesicular eruptions, (3) urticarial lesions, (4) maculopapular eruptions and (5) livedo or necrosis.⁴ Marzano *et al* in their publication added purpuric/vasculitis pattern as the sixth pattern.² None of the classifications include this follicular rash type. Galvan-Casas *et al* published a report of perifollicular eruption in 47% of their subjects. The skin lesions were preceded with urticaria and grew as maculopapules in a perifollicular distribution with varying degrees of scaling. Some were described as being similar to pityriasis rosea.⁴ Our patient presented with follicular papules without scales, which were not preceded with urticaria and had a different clinical appearance from the previous report.

Cutaneous manifestations, although in a low percentage, are present in patients with COVID-19 and should not be ignored by clinicians. Given the high mortality rate of the infection, timely and accurate identification of relevant cutaneous manifestations may play a role in the early diagnosis and successful management.⁹ Additionally, the increasing number of cutaneous manifestation case reports emphasises that awareness of personal protection equipment and the need for protective facilities are essential to safeguard medical workers from cross-transmission.¹⁰

In conclusion, we report a case of follicular eruption which may represent a cutaneous manifestation in patients with COVID-19. The skin rash presented after systemic symptoms appeared along with an itchy and burning sensation. The follicular eruptions can be mistaken as symptoms of many other

Learning points

- ▶ Follicular eruption may represent a cutaneous manifestation in patients with COVID-19.
- ▶ Cutaneous manifestations, although in a low percentage, are present in patients with COVID-19 and should not be ignored by clinicians.
- ▶ Given the high mortality rate of the infection, timely and accurate identification of relevant cutaneous manifestations may play a role in the early diagnosis and successful management.
- ▶ The increasing number of cutaneous manifestation case reports emphasises that awareness of personal protection equipment and the need for protective facilities are essential to safeguard medical workers from cross-transmission.

diseases. Clinician should not ignore any skin manifestations to increase the awareness of these unique COVID-19 symptoms. Future research, especially histopathological research, is needed to understand the basic mechanism of cutaneous manifestations of COVID-19.

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