Case Report

Urticaria as a Cutaneous Manifestation of SARS-CoV-2 Infection – A Case Report

Cut Putri Hazlianda[1], Cut Samira Samsul[2], Deryne Anggia Paramita[3]

Abstract

The Severe Acute Respiratory Syndrome Coronavirus-2 (SARS-CoV-2) virus is responsible for causing the infection known as Coronavirus disease 2019 (COVID-19). Clinical manifestations of COVID-19 have been associated with various symptoms, but skin manifestations are rarely seen. A 25-year-old woman presented with complaints of erythematous urticarial plaques accompanied by itching over buttocks, waist, right arm, and right toe for one day, and confirmed positive for COVID-19. There is research on the timing of skin rash appearance in COVID-19 patients, with 46.1% of rashes appearing simultaneously with prodromal symptoms, 44.3% appearing after and 9.6% appearing before prodromal symptoms, with varying resolution time period.

Keywords: Cutaneous Manifestations in COVID-19, Urticaria, SARS-CoV-2 Infection.

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Authors Affiliation:

[1,2,3]Department of Dermatology and Venereology, Faculty of Medicine Universitas Sumatera Utara, Medan, Indonesia

Corresponding Author: Cut Putri Hazlianda, Department of Dermatology and Venereology, Faculty of Medicine Universitas Sumatera Utara, Medan, Indonesia. **Email:** cut.putri@usu.ac.id

Introduction

The etiological agent responsible for Coronavirus Disease 2019 (COVID-19) is the Severe Acute Res-piratory Syndrome Coronavirus-2 (SARS-CoV-2) virus.[1] The Novel Coronavirus 2019 (nCOV-2019) was first discovered and identified in a group of pneumonia cases in Wuhan, Hubei Province, China in December 2019.[2] In Indonesia, COVID-19 cases were discovered on March 2, 2020 for the first time. As of December 2020, there were a total of 828,026 confirmed cases with 24,129 deaths.[3]

COVID-19 has been associated with various symptoms, but skin manifestations are rarely seen in the presentation of COVID-19. In the early reports of COVID-19, skin manifestations was found in 2 patient in China. However, with the increasing number of case reports, there has been an increase in reporting to dermatologists regarding conditions in patients with COVID-19.[3]

Urticaria is one of the skin manifestations reported in COVID-19 patients. Urticaria is usually characterized by raised skin and may be surrounded by erythema that is itchy or feels like burning. There have been several reports of urticaria in COVID-19 patients, such as that reported by Henry et al, in France who reported one patient with urticaria on the forehead, acral parts of the hands and feet that appeared before the onset of fever or respiratory symptoms.[3]

Although cutaneous manifestations in COVID-19 are rare, it is very important to be aware of these in relation to proper diagnosis, management and disease control, especially in areas where testing is limited.[3]

Case Report

A 25-year-old woman complained of urticated plaques accompanied by itching over the buttock area, right side of waist, right arm, and right toe for one day. The bumps were itchy, especially when the weather is hot and sweaty. The patient has never experienced such complaint before and has no history of allergy to medication food, or other substances (allergens). Swelling of the lips and eyelids was not found.

The patient is a confirmed COVID-19 positive patient and is currently hospitalized. Before being hospitalized, the patient complained of cough, flu, and sore throat. The patient purchased over-the-counter medication but there was no improvement. Two days after these symptoms, the patient complained of fever of 38°C. Prior to the patient's cough symptoms, the patient's mother had already experienced symptoms of fever, cough, and shortness of breath. The patient and her mother decided to undergo an oropharyngeal swab, which resulted in a positive COVID-19 infection. Due to worsening symptoms, the patient and her mother were eventually admitted to the hospital.

Figure 1: A 25-years-old woman with urticated plaques accompanied by itching over the buttock area, right side of waist, right arm, and right toe.

On physical examination, the patient was found to be weak and compos mentis, good nutritional status, a temperature of 38.3°C, and vital signs within normal limits. Dermatological examination revealed erythematous annular and polycyclic plaques, ranging in size from milia to plaques, with welldefined borders, in the region gluteal, right lateral abdominal, posterior right antebrachial, right dorsal of the foot, IV and V digits, and right hand (Figure 1).

The provisional diagnosis in this patient is urticaria due to COVID-19. The patient receives systemic treatment with a second-generation oral antihistamine (cetirizine 10 mg) once daily orally and topical treatment with a medium-potency steroid cream (mometasone furoate cream 0.1%) twice daily. The patient is also educated not to use disposable diapers, to keep the skin clean and dry, to do positional mobilization, to eat nutritious food, and to get enough rest. The prognosis for this patient is good for survival, good for function, and uncertain for recovery.

Discussion

COVID-19 infection is a newly emerging infectious disease with several different symptoms, including on the skin. COVID-19 manifestations on the skin can appear as maculopapular rash, urticaria, purpura, vesicular lesions, COVID toes, and even androgenetic alopecia. Despite the exact pathogenesis of cutaneous manifestations associated with COVID-19 remaining uncertain, there is a likelihood that SARS-CoV-2 operates similar to other viruses by inducing mast cell activation and consequent histamine release.[4]

One of the earliest investigations that reported cutaneous manifestations in COVID-19 was carried out by a team of dermatologists in Italy, who analyzed 88 patients with COVID-19 and observed skin manifestations in 20.4% of cases. Specifically, erythematous rash (14 cases), urticarial rash (3 cases), and vesicular rash (1 case) were identified.[5]

In this case, the patient was a confirmed positive COVID-19 case after receiving a positive result on oropharyngeal swab RT-PCR. The patient presented with COVID-19 symptoms such as fever, flu-like symptoms, cough, and sore throat. According to the literature, fever is the most common clinical manifestation that appears in COVID-19 cases, which may be followed by respiratory symptoms.[6]

The patient complained of the presence of red bumps that appeared after 3 days of hospitalization. According to the literature, the most common cutaneous manifestations found in COVID-19 patients are maculopapular rash and urticaria.[5] In the

study by Daneshgaran et al, the timing of skin rash appearance in COVID-19 patients was found to be 46.1% occurring simultaneously, 44.3% appearing after and 9.6% of rashes appearing before prodromal symptoms.[6] Fernandez-Nieto et al, identified a patient in Madrid with urticarial rash that appeared 6 days after the initial onset of COVID-19 symptoms.[7]

Urticaria is the second most common skin rash that occurs in COVID-19 patients, which appeared in 84 patients (18.6%) with an average age of 47 years, while the youngest patient was 2 months old and the oldest was 71 years old. The rash mostly appears during the active infection phase, with an average duration of 6-8 days.[8] In this case report, the patient is 25 years old and was found to have urticaria for approximately 10 days.

The mechanism of cutaneus lesions in COVID-19 is still unclear, but there are several theories stating that SARS-CoV-2 enters cells through the Angiotensin Converting Enzyme 2 (ACE-2) receptor on the cell surface. Bourgonje et al, and Xue et al, found that ACE receptors are present in the skin, specifically in the basal layer of the epidermis and eccrine glands. Injury to the skin may facilitate viral access to the ACE-2 receptor on keratinocytes, potentially contributing to the clinical manifestations of SARS-CoV-2 infection.[9]

There is still limited literature discussing specific therapies for cutaneus manifestations in COVID-19. Most literature suggests that cutaneus manifestations in COVID-19 can resolve spontaneously.[10] In this case, the patient was given systemic treatment of second-generation oral antihistamines once a day, and topical treatment with a medium-potency steroid cream applied twice a day, along with education to maintain clean and dry skin, change positions frequently, eat nutritious food, and get enough rest. The therapy was successful, as the skin lesions were no longer present at the follow-up on the tenth day. According to the literature, the classic algorithm recommended for treating urticaria involves the use of second-generation systemic antihistamines, which can be given for 2-4 weeks. Due to their high efficacy, favorable safety profile, and good tolerability, second-generation non-sedating H1 antihistamines such as azelastine, bilastine, cetirizine, desloratadine, ebastine, fexofenadine, levocetirizine, loratadine, mizolastine, and rupatadine are considered the first-line treatment option for cutaneus manifestations associated with histamine release. If symptoms persist with the use of non-sedating H1 antihistamines for 2 weeks, the dose can be increased up to 4 times the initial dose.[11]

The prognosis for acute urticaria is generally good, and it can disappear within 24 hours. In COVID-19, there is a tendency to produce symptoms up to 14 days after infection, so skin manifestations can serve as an indicator of infection and help to diagnose accurately. Skin lesions do not only occur in patients with severe SARS CoV-2 symptoms, but can also occur in patients with mild respiratory symptoms. This is important for all doctors to consider, as skin lesions may be the only symptom of COVID-19, thus aiding in early diagnosis and management of patients hence better disease control.[8]

Conclusion

Skin manifestations in COVID-19 are rare, but this case report found that urticaria is one of the skin manifestations in COVID-19.

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Author's Contribution

CPH: Conceived, designed, edited the manuscript, given final approval of the version to be published, critical revisions.

CSS: Manuscript writing, final approval of the version to be published, agree to be accountable for all aspect of the work.

DAP: Manuscript writing, final approval of the version to be published, agree to be accountable for all aspect of the work.

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