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# CASE REPORT: URTICARIA AND EDEMA IN CONFIRMED CASE OF COVID-19

Yohanes Firmansyah, Jessica Elizabeth, Sukmawati Tansil Tan  
Faculty of Medicine, Tarumanagara University, Jakarta, Indonesia

Correspondence: yohanesfirmansyah28@gmail.com ;  
Phone Number: +628-12-9793-4375

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## **Abstrak**

Infeksi COVID-19 merupakan salah satu masalah kesehatan terbesar di dunia. Infeksi COVID-19 memiliki spektrum penyakit sangat luas dan menyerang berbagai jenis organ. Salah satu manifestasi infeksi COVID-19 adalah kelainan pada kulit. Pada pasien COVID-19, berbagai manifestasi kulit diamati, dan tidak ada manifestasi kulit yang spesifik untuk COVID-19. Laporan kasus ini membahas seorang perempuan berusia 23 tahun dengan infeksi COVID-19 terkonfirmasi yang memiliki manifestasi kulit berupa ruam yang menyebar secara simetris di ekstremitas atas dan bawah. Terdapat lesi kulit dengan efloresensi berupa urtikaria dan edema dengan bagian tengah eritema pada daerah tungkai dan leher. Pada hari ke-15, semua lesi kulit menghilang dengan pengobatan untuk infeksi COVID-19 standar dan terapi simptomatik. Kesimpulan dalam laporan ini adalah manifestasi COVID-19 pada kulit sangat beragam. Pada hari ke-15, semua lesi kulit menghilang dengan pengobatan standar. Pada akhirnya, perlu diwaspadai bahwa lesi atau kelainan pada kulit merupakan salah satu indikator infeksi COVID-19

**Kata kunci:** COVID-19, manifestasi kulit, edema, urtikaria

## **Abstract**

COVID-19 has become one of the biggest health problems in the world. The disease spectrum is vast, with several target organs; the skin is one of them. In COVID-19 patients, various skin manifestations were observed, and none of the skin manifestations were specific for COVID-19. This case report discusses a 23-year-old woman with confirmed COVID-19 who had symptomatic skin manifestations spread symmetrically in the upper and lower extremity. Limb and neck area, numerous in the form of urticaria with edema of varying size in the

central part and surrounded by erythema. By day 15<sup>th</sup>, all skin lesions disappeared only with standard COVID-19 treatment and symptomatic therapy. Conclusion in this report is the manifestations of COVID-19 on the skin are very diverse. By day 15, all skin lesions disappeared with standard COVID-19 treatment. In the end, it is important to be aware that skin lesions in patients are an indicator of COVID-19 infection

**Keywords:** COVID-19, skin manifestation, edema, urticaria

## INTRODUCTION

In Wuhan, China, there have been several unexplained cases of pneumonia recorded since December 2019. Quick steps have been taken by the Chinese government and researchers to monitor the outbreak and find the etiology of mysterious pneumonia. The World Health Organization (WHO) provided the new virus terminology as the Novel Coronavirus 2019 (2019-nCoV) on January 12, 2020. WHO declared the 2019-nCoV infection outbreak status on January 30, 2020, alerts of a public health emergency, which became a significant international issue. WHO formally introduced the disease's terminology caused by 2019-nCoV as the 2019 Corona Virus Disease (COVID-19) on February 11, 2020. On the same day, the International Committee on Virus Taxonomy's Coronavirus Research Group (CSG) referred to 2019-nCoV as Extreme Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2) (AHC Media, 2020; Du *et al.*, 2020; Gorbalenya *et al.*, 2020).

Until October 17, 2020, cases of SARS-CoV-2 infection infected 39,023,292 patients worldwide, with

a cumulative death of 1,099,586 individuals. The United States was the nation with the largest SARS-CoV outbreak, with 18,447,750 cases, 8,352,384 cases in South-East Asia, 7,570,929 patients in the Europe, 2,725,600 cases in Eastern Mediterranean, and 1,249,998 cases in Africa (World Health Organization, 2020). As part of the South-East Asian country, Indonesia recorded 353,461 cases with 12,347 deaths on October 17, 2020 (Kemenkes RI, 2020a, 2020b).

It is also uncertain about the clinical manifestations of Covid-19 itself. Case reports show that the disease spectrum is vast and targeting many organs. In general, the symptoms recorded vary from mild to severe, leading to death in some cases. Fever, cough, myalgia or weakness, pneumonia, and extreme dyspnea are the most frequently recorded symptoms, although seldom reported symptoms to include headaches, diarrhea, hemoptysis, runny nose, and phlegm cough (Adhikari *et al.*, 2020; Huang *et al.*, 2020; Zhu *et al.*, 2020).

As explained earlier, the clinical manifestations of Covid-19

disease itself may be extensive and not only focused on the respiratory organs or, in this case, the lungs (Song *et al.*, 2020; Zhang *et al.*, 2020). Reports from various studies suggest that Covid-19 can attack the nervous system (Asadi-Pooya and Simani, 2020; Kotfis *et al.*, 2020; Zhou *et al.*, 2020), gastrointestinal-hepatobiliary system (Agarwal *et al.*, 2020; Cheong *et al.*, 2020; Musa, 2020; Sinonquel *et al.*, 2020; Tian *et al.*, 2020; Wong *et al.*, 2020), urology system (Puliatti *et al.*, 2020), cardiovascular and metabolic system (Bansal, 2020; Kang *et al.*, 2020; B. Li *et al.*, 2020), hematology system (Kotfis *et al.*, 2020), reproductive system especially in pregnancy (Di Mascio *et al.*, 2020; Elshafeey *et al.*, 2020; Yang *et al.*, 2020; Zhao *et al.*, 2020), integument system or mucocutaneous (Sachdeva *et al.*, 2020, 2020; Wollina, 2020; Wollina *et al.*, 2020) and with the actual form of efflorescence typical for other diseases such as varicella (Marzano *et al.*, 2020; Ortega-Quijano *et al.*, 2020).

This case report discusses 1 case of COVID-19 in a 23-year-old female patient that occurred in Indonesia. The purpose of this case report is to increase the awareness of health workers about the possible manifestation of Covid-19 in the form of active skin lesions.




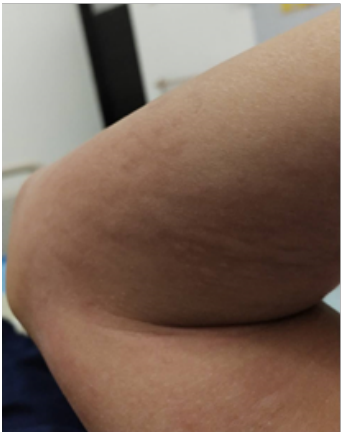

## CASE REPORT

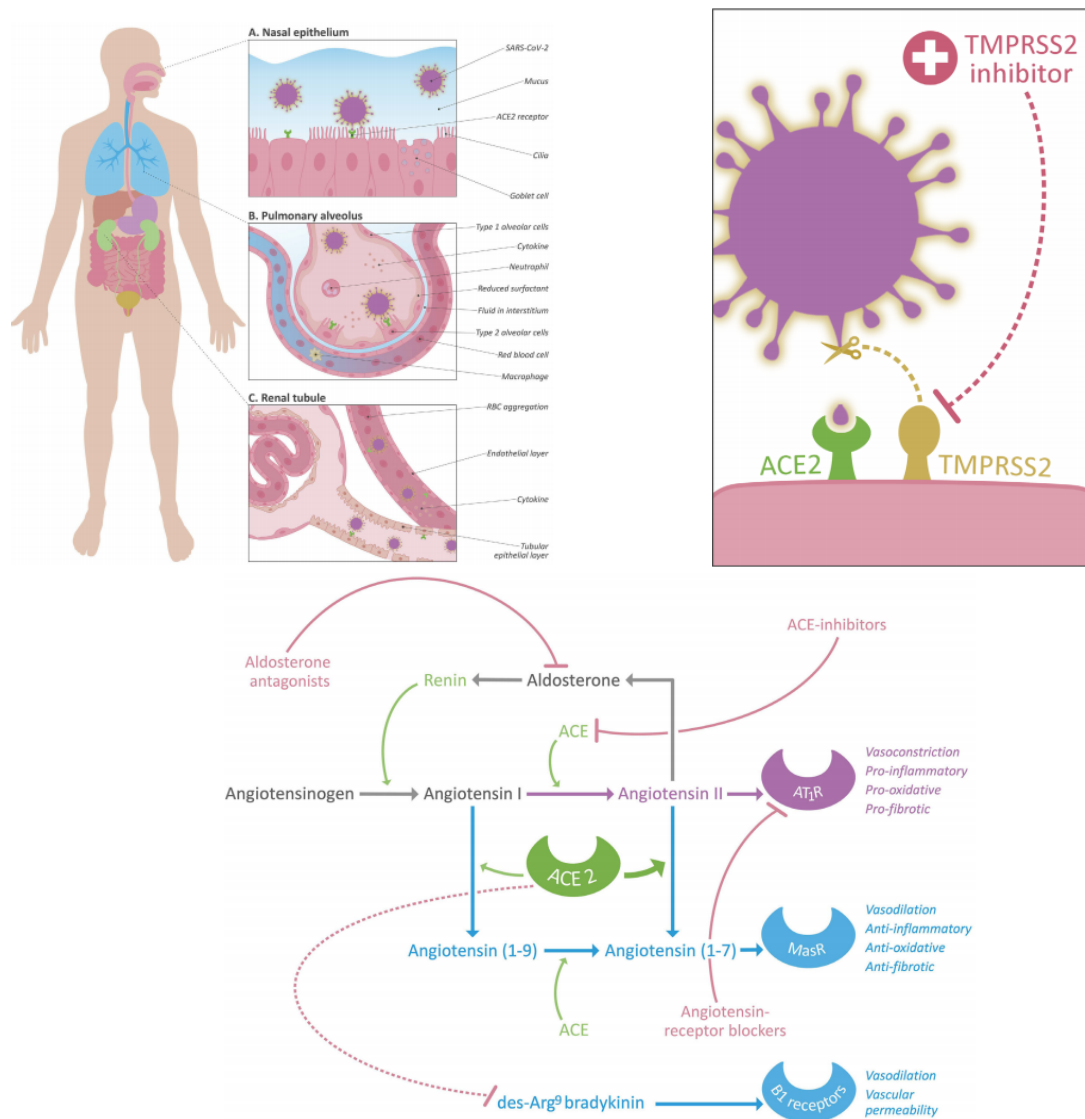
The patient subject reported in this case report was a 23-year-old woman with a cough and throat complaint. The patient was a MAP-Hospital medical worker and had a history of interaction with a patient with positive COVID-19. Figure 1 describes in-depth the history of the patient's illness. On the 12th day, signs of skin lesions appeared symmetrically distributed in the upper and lower limb and neck area, numerous in the form of urticaria with edema of varying size in the central part and surrounded by erythema. (Figure 2-6). The lesion was itchy and had burning sensation. The patient was treated for skin lesions in the form of 3x10 mg oral loratadine, 0.25% desoximetasone cream, and Diflucortolone valerate cream 0,1% (Nerilon®). On the 15th day of the signs, lesions on the skin vanished.

Laboratory tests gave results on the 5th day of symptoms: hemoglobin 12.2 g/ dL, hematocrit 37.0 percent, platelets 200,000/  $\mu$ L, erythrocytes 4.44 million/  $\text{mm}^3$ , lymphocyte leukocytes 9400/  $\mu$ L 40.9 percent, basophils 0.2 percent, neutrophils 50.8 percent, monocytes 5.1 percent. 1,24 neutrophils to lymphocyte ratio and 3845 cells/ $\text{mm}^3$  absolute lymphocyte count.

Urticaria												→			
Sore Throat	→														
Cough	→														
	Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7	Day 8	Day 9	Day 10	Day 11	Day 12	Day 13	Day 14	Day 15

**Figure 1.** Patient's disease history

		
<b>Figure 2.</b> Maculopapular rash on the upper extremity	<b>Figure 3.</b> Maculopapular inflammation on the left femoral region	<b>Figure 4.</b> Maculopapular rash on the cruris sinistra region
		
<b>Figure 5.</b> Maculopapular rash on the right upper extremity	<b>Figure 6.</b> Maculopapular rash on the neck	



**Figure 7.** Distribution and pathogenesis of ACE-2  
Image Source: Bourgonje *et al.*, 2020

## DISCUSSION

The new study concludes that ACE2 is a functional host receptor for SARS-CoV-2 infection. ACE-2 receptor expression with its binding affinity for the SARS-Cov 2 virus was 10 to 20 times greater. It is based on this receptor expression that, at the molecular biology level, clinical manifestations, replication, intensity, and transmission of the SARS-Cov 2 virus are clarified. Animal or mouse studies have shown

that ACE-2 expression plays a significant role in the incidence of vascular disorders, pathology of the lungs, seriousness of infection, and the frequency of respiratory acidosis mechanisms that cause respiratory failure (Bourgonje *et al.*, 2020). The ACE-2 receptor is distributed physiologically into different body tissues, excreted in keratinocyte tissue, and basal epidermal cells (Harmer *et al.*, 2002; Liao *et al.*, 2019). This recent research has

shown that ACE-2 expression spreads to hair follicles, sebaceous gland cells, and smooth muscle cells around the sebaceous glands and eccrine cells in the basal cell layer (Grzegorzolka *et al.*, 2013) IHC, which showed ACE2 positive keratinocytes in the basal stratum, spinosum stratum, and epidermal granulosum stratum, further supported these findings (Xue *et al.*, 2020). Li *et al.* also observed that CD8+T cells had a significant positive association in the skin with ACE2 expression (Li *et al.*, 2020). It is not surprising, based on the pathophysiology and pathogenesis of SARS-Cov 2 virus infection and its interaction with the ACE-2 receptor, which is spread not only throughout the lungs but in the skin layer, that the presence of skin lesions is also due to the similarity of the ACE-2 receptor in both types of organs (Figure 7).

Casas and colleagues' review is a study that categorizes these skin manifestations very well based on the reports of 375 cases of patients infected with Covid-19 in Spain. They categorized those skin manifestations into five major classifications. Included in the category are: (Galván Casas *et al.*, 2020):

1. Erythema-edema with vesicles or pustules (pseudo-chilblain) in the leg region is found in 19 percent of Spain cases. The potential existence of cold acral is some additional manifestations of this classification. Purpura focuses on

the area of the extremities (hands and feet) that are usually asymmetric.

2. Vesicular eruptions usually occurring in the trunk region are monomorphic to polyform and contain hemorrhagic material that, if not correctly handled, can become larger and spread rapidly to other areas of the body.
3. Lesions of urticaria extend mostly across the trunk to the extremities. Urticaria lesions were found in 19 percent of the cases of skin manifestations in Covid-19.
4. Maculopapular rash, of varying sizes and amounts. A comparable distribution image of pityriasis rosea is seen in many case reports. Infiltrated papules in the limbs (dorsum of the hands), pseudovesicles, and erythema multiform were also revealed in a study of other cases.
5. Livedo or necrosis occurs as a vascular occlusive manifestation and is distributed across the trunk and acral regions. This form of the lesion has been reported to occur in 6 percent of patients with confirmed manifestations of COVID-19.

Further suggestions in this study are for health workers to be aware of skin lesions as a manifestation of COVID-19. The suspicion will be even greater if there is an area of close contact with a patient with confirmation of Covid-19 and symptoms of an acute upper respiratory tract infection.

## CONCLUSION

The manifestations of COVID-19 on the skin are very diverse. This case report reports a 23-year-old woman with confirmed COVID-19 with skin manifestations in the form of symmetrical skin lesions and even distribution in the upper and lower limb and neck area, numerous in the form of urticaria with edema of varying size in the central part and surrounded by erythema. The lesion feels hot and is itchy. By day 15, all skin lesions disappear with standard COVID-19 treatment. In the end, it is important to be aware that skin lesions in patients are an indicator of Covid-19 infection.

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