

# Atypical Exanthem as Cutaneous Manifestation Related to COVID-19 at a Primary Healthcare Facility

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## ABSTRAK

*Infeksi penyakit Coronavirus (COVID-19) menyerang struktur mukosa saluran pernapasan, terutama mukosa bronkial dan sel imun. Perubahan kulit dan manifestasi terkait infeksi COVID-19 tetap tidak dipahami dengan jelas. Manifestasi kulit terkait COVID-19 telah dilaporkan. Pasien kami menunjukkan eksantema kulit atipikal di kakinya tanpa kelainan lain yang ditemukan. Kami menggunakan azitromisin oral 500 mg, deksametason 0,5 mg, vitamin C 100 mg, dan parasetamol 500 mg, yang tersedia di Puskesmas Badak Baru. Exanthem telah membaik setelah 10 hari pengobatan.*

**Kata kunci:** manifestasi kulit atipikal, covid-19, exanthem, perawatan kesehatan primer.

## ABSTRACT

*Coronavirus disease (COVID-19) infection attacks the mucosal structures of the respiratory tract, especially the bronchial mucosa and immune cells. The skin changes and manifestations related to COVID-19 infection remain not clearly understood. Cutaneous manifestations related to COVID-19 had been reported. Our patient manifested atypical cutaneous exanthem on her legs, with no other abnormalities found. We used oral azithromycin 500 mg, dexamethasone 0.5 mg, vitamin C 100 mg, and paracetamol 500 mg, which are available at Badak Baru Primary Health Care. The exanthem has improved after 10 days of treatment.*

**Keywords:** atypical cutaneous manifestation, covid-19, exanthem, primary health care.

## INTRODUCTION

The first cases of coronavirus disease (COVID-19) were found in Wuhan, China. The World Health Organization reported that the outbreak was caused by a new type of coronavirus called COVID-19 on February 11, 2020.<sup>1</sup> COVID-19 is a public health emergency characterized by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) or acute respiratory distress syndrome (ARDS).<sup>2</sup>

COVID-19 infection attacks the mucosal structures of the respiratory tract, especially the bronchial mucosa and immune cells as evidenced by the histopathological findings in biopsy specimens from various organs such as the lungs, heart, kidneys, spleen, or bone marrow. However, SARS-CoV-2 symptoms are unpredictable; each person exhibits various symptoms that are different from others, which making difficult to establish a certain diagnosis.<sup>3</sup> Several

dermatologists found cutaneous manifestations such as rash, urticaria, chicken pox-like eruptions, transient livedo reticularis, chilblain lesions, and erythema multiformes.<sup>4,5</sup> However, cutaneous manifestations related to COVID-19 infection remain not clearly understood whether they were caused by the infection or treatment reaction.<sup>3,6</sup>

### CASE ILLUSTRATION

A 30-year-old female patient visited the Badak Baru Primary Health Care and presented with rashes on her lower legs since 3 days prior (**Figure 1**). A week before the rash emerged, the patient complained of a mild fever, cold, cough, sore throat, and discomfort when swallowing. The patient denied any history of drug consumption. Her vital signs were normal. The physical examination exhibited symmetrical exanthem on both lower legs. The laboratory finding showed reactive antibody COVID-19 test and positive PCR swab COVID-19 test. However, the physician did not conduct histopathological examination of the skin due to high risk virus transmission and limited facilities. The patient was diagnosed with exanthematous rash related to COVID-19. She was treated with oral azithromycin 500 mg once a day for 10 days, oral

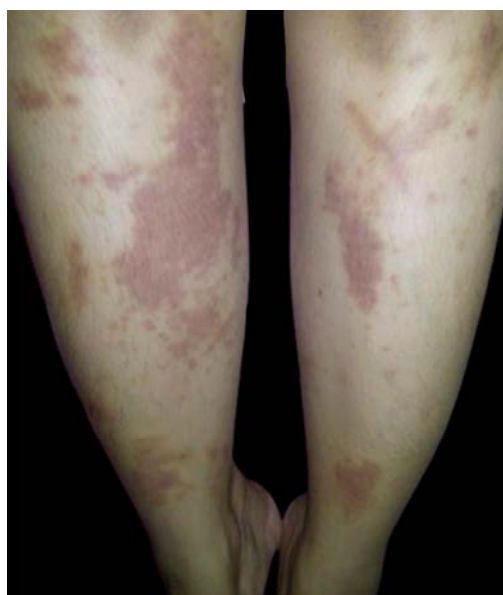
dexamethasone 0.5 mg twice a day (four tablets in the morning and two tablets in the afternoon) for 5 days and then tapered to two tablets daily in the morning and two tablets daily in the afternoon for 5 days, oral vitamin C 100 mg 3 times a day for 10 days, and paracetamol 500 mg as needed for high fever. Moreover, patient self-isolated for 10–14 days. On the 10<sup>th</sup> day of the treatment, the evaluation exhibited improvement in cutaneous manifestation (**Figure 2**). No other abnormalities were found.



**Figure 1:** Lesion on lower leg: exanthem upon admission.



**Figure 2:** Both lower legs: atypical exanthem 10 days after admission.



**Figure 3:** Lower leg atypical exanthem after 14 days.



**Figure 4:** Improvement after 40 days.

## DISCUSSION

Cutaneous manifestation related to COVID-19 was first reported by Recalcati, who examined 148 confirmed COVID-19-positive patients who were hospitalized at Lecco Hospital, Lombardi, Italy. Of the 148 patients, it turned out that 60 patients have received previous therapy so they were excluded from observation. The most common types of skin disorder were erythematous rash (77.8%), extensive urticaria (16.7%) and varicella-like vesicles (5.5%).<sup>7</sup>

Our patient had atypical exanthem on both lower legs. An exanthem is defined as a manifestation of infection of the skin or a reddening reaction of an inflammatory process related to the adverse effects of systemic drug use.<sup>8</sup> Casas et al. classified cutaneous manifestation with COVID-19: pseudo chilblain, urticarial eruption, vesicular eruption, and maculopapular eruption.<sup>9</sup> According to Garcia, viral exanthem is classified into three types, namely, classic or typical viral, atypical, and paraviral exanthem. The six classic types of rashes are measles, rubella, scarlet fever, exanthem subitum, erythema infectiosum, and varicella.<sup>10</sup> Viral infection is preceded by a very complicated viral infection, both at the time of binding of the virus by certain human

receptors, through different stages until new virion are released outside. Initial viral infection is stochastic, depending on human exposures to the virus; it may cause systemic infection or complete elimination of the virus by antibodies due to minimal exposure to the virus. Although the pathobiology of cutaneous manifestation related to COVID-19 is not well understood, exanthem is common in viral infections. On the basis of the cells that are likely infected, COVID-19 can be divided into three phases that correspond to different clinical stages of the disease: asymptomatic state (initial 1–2 days of infection), upper airway and conducting airway response (next few days), and then progression to ARDS with hypoxia, ground glass infiltrates. The 20% of confirmed COVID-19 patients can progress to the third stage, and approximately 80% of infected patients have asymptomatic and mild diseases.<sup>11</sup>

Therapy using oral azithromycin 500 mg, dexamethasone 0.5 mg, vitamin C 100 mg, and paracetamol 500 mg for high fever and self-isolation for 10–14 days was recommended. These medications are available at Badak Baru Primary Health Care (Puskesmas). On the 10<sup>th</sup> day, the patient came to the Primary Health Care (Puskesmas) with fading rashes on both her legs (Figure 2). No other abnormalities were found. The exanthem has improved after 14 and 40 days (Figures 3 and 4). The anti-microbial azithromycin has immunomodulatory and anti-inflammatory effects.<sup>12</sup> Oral dexamethasone is also given as an anti-inflammatory drug. Dexamethasone inhibits the expression of inflammatory mediators by macrophages and other cells and is used in the treatment of many immune-mediated inflammatory diseases. Dexamethasone has a long-lasting action and higher anti-inflammatory and lower mineralocorticoid effects.<sup>13</sup> Meanwhile, oral vitamin C is indicated to increase the potentiation of anti-inflammatory drugs.

## Limitations

Limitations in this case report include the use of minimal facilities and equipment such as a camera that is not available in our public health facility. Atypical manifestations can be misdiagnosed in cases of COVID-19.

## CONCLUSION

Besides respiratory problems, the SARS-CoV-2 virus manifested multi-organ symptoms with each person having different manifestations, including those on the skin. Comprehensive identification by conducting a complex history and physical examination is useful in treating SARS-CoV-2 infection. We showed the rare manifestations, which cutaneous manifestations might be related to immunity.

## DECLARATION OF PATIENT CONSENT

The authors certify that they obtained all appropriate patient consent forms. In the form, the patient has given her consent for her images and other clinical information to be reported in a journal. The patient has understood that her name and initials will not be published and due efforts will be made to conceal her identity, but anonymity cannot be guaranteed.

## CONFLICTS OF INTEREST

There is no conflict of interest.

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