

Characteristics of Skin Disease related to COVID-19 infection in RSUP Dr. M. Djamil Padang: A retrospective Study

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Abstract

Objective To identify the clinical characteristics skin diseases encountered in COVID-19-infected patients receiving therapy at Dr. M. Djamil Hospital Padang.

Methods This research is a retrospective study with a sample of 49 COVID-19 patients with skin disorders treated at Dr. M. Djamil Hospital Padang from March 2020-October 2021.

Results From the medical record data, 49 patients with skin disorders were enrolled with 25 women (51%) and 24 men (49%). With the common age being 45-65 years, as many as 19 people (39%), and the minor age being 0-11 months; one person (2%). The most extended length of stay was 11-15 days for as many as 17 people (35%). Erythema, chilblains, and urticaria are some skin disorders suspected of being a skin manifestation of COVID-19 infection. The most common skin disorders accompanied with COVID-19 infection are SLE, irritant contact dermatitis and ulcers.

Conclusion It can be challenging to distinguish between various skin conditions and COVID-19 skin symptoms. According to this study, the most common symptoms of COVID-19 patients were erythema, chilblains, and urticaria.

Key words

Skin disease; COVID-19.

Introduction

Coronavirus disease 2019 (COVID-19) made its first appearance in Wuhan Province, China, and is a novel strain of Coronavirus (SARS-CoV-2). On December 29, 2019, the first four cases were reported. In a short time, the cases of COVID-19 were increasingly spreading to other Chinese cities and became a global problem.¹

COVID-19 infection is associated with fever, dry cough, breathlessness, bilateral ground-glass

opacity in the thorax on *CT scan*, runny nose, sneezing, and sore throat. Moreover, based on the results of the chest X-ray, several cases revealed infiltrates in the upper lobes of the lungs in association with increasing dyspnea and hypoxemia. Some patients also experience gastrointestinal symptoms such as diarrhea.²

In addition to these symptoms, COVID-19 also has dermatological manifestations. There are various reports regarding the skin manifestations of COVID-19. It is challenging to distinguish skin manifestations caused by the COVID-19 virus from other viral diseases because of the clinical similarities in viral exanthems. At the same time, the supporting examinations are still

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minimal, so more knowledge is needed to help make a diagnosis based on the clinical manifestations reported from various COVID-19 cases.³

The most common manifestations in severe cases of COVID-19 are an erythematous rash and urticaria. It is challenging to differentiate the underlying causes of the manifestations (viral infection or new drug prescribed). Reported skin manifestations of COVID-19 are diverse, scattered, and sometimes confusing, making diagnosing difficult. However, COVID-19 infection can also be accompanied by pre-existing skin diseases that appear during hospitalization.^{2,4}

Until then, at this time, there is no specific examination in diagnosing skin manifestations of COVID-19. Recalcati *et al.* reported three main patterns of skin manifestations of COVID-19 infections in Italy: rash exanthem, urticaria, and vesicle.⁵

The mechanism of skin disorders in COVID-19 patients is not widely known. One of the theories is that the virus circulates in cutaneous blood vessel, stimulates cytokines to attract blood immune complexes and then causes lymphocytic vasculitis. Keratinocytes may be the secondary targets after Langerhans-cell are activated. It can be established that the virus does not explicitly target the keratinocytes, but an immunological response to the infection activates *Langerhan*-cells and promotes vasodilation and spongiosis.⁶

Methods

This research was a retrospective study with a sample of 49 COVID-19 patients with skin disorders at Dr. M. Djamil Padang Hospital from March 2020 - March 2021. Inclusion criteria: all positive COVID-19 patients with skin disorders from March 2020 to October 2021. Exclusion criteria for the patients for which the data was

incomplete. The data were taken from the medical record. The research was conducted after receiving ethical clearance from the research ethics committee of Dr. M Djamil Padang Hospital.

The results revealed that the total of confirmed COVID-19 patients with skin disorders was 49 patients, with female 51% (25 patients) and men were 49% (24 patients). Age ranged from 45 to 64 years in 19 cases (39%), 25-44 years in 16 cases (33%), >65 years in 7 cases (14%), 15-24 years in 6 cases (12%), 0-11 months in 3 cases (6%). The most extended length of stay was 26-30 days in 6 cases (12%), and the shortest treatment was 1-5 days in 7 cases (15%).

From this data, three skin disorders are suspected as skin manifestations of COVID-19 infection, i.e., erythema, chilblains, and urticaria can be seen in **Figure 2**.

Discussion

COVID-19 patients accompanied by skin disease are predominantly female and elderly. In this study, the most extended stay was less than two weeks. Three skin disorders are suspected as skin manifestations of COVID-19 infection erythema, chilblains, and urticaria. Those conditions follow the literature. Recalcati described the first urticarial eruptions associated with COVID-19.⁵

Table 1 Characteristics of COVID-19 patients based on gender.

No	Sex	Number of cases	%
1	Women	25	51
2	Men	24	49

Table 2 Characteristics of COVID-19 patients by age.

No	Age	Number of cases	%
1	45 - 64 Years	19	39
2	25 - 44 Years	16	33
3	>65 Years	7	14
4	15 - 24 years old	6	12
5	0 - 11 Months	1	2

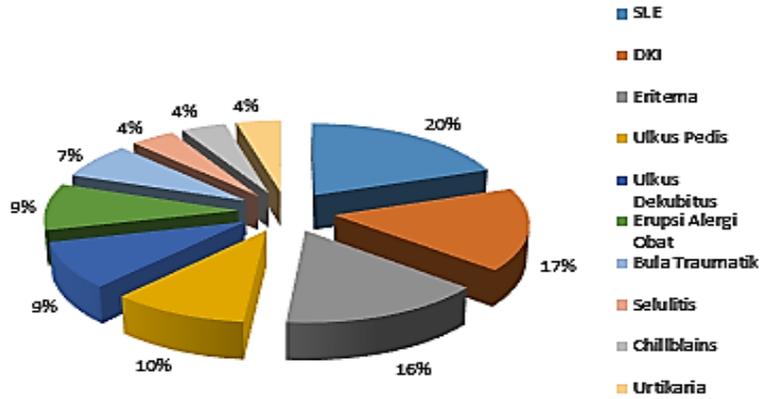


Figure 1 A Diagram of the ten most common skin disorders in COVID-19 patients treated at Dr. M. Djamil Hospital Padang in March 2020- October 2021.

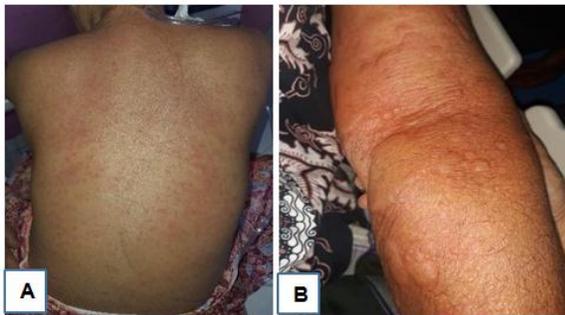


Figure 2 (A) Erythema and (B) urticaria lesions

Table 3 Number of cases based on the length of stay

No	Long Treatment	Number of cases	%
1	< 2 weeks	34	70
2	> 2 weeks	15	30

Other cohort studies had already reported the manifestation of urticaria-like eruption. Galván Casas *et al.* Observed that urticarial rash developed in 19% of their group, tended to emerge with systemic symptoms, lasted around one week and was linked with moderate to severe COVID-19. Furthermore, pruritus was nearly always present.⁷ It is possible that skin complaints such as urticaria are skin manifestations of covid 19 infection, considering the history of hives in previous patients but for an extended period. Rosell-Díaz *et al.* conducted a retrospective case series investigation on twelve adult patients. They were treated for pneumonia with hydroxychloroquine and lopinavir/ ritonavir treatment. All patients developed popular exanthem after 20 days (10-

28), seven patients had lesion resembling erythema multiforme-like lesions, and three additionally reported fever and facial edema.⁸ Two of these individuals had cutaneous biopsies, which were consistent with a medication reaction. Almost all of the patients in this study received treatment. However, there was no biopsy examination to confirm the diagnosis of the patients, whether this was a skin disorder due to drug allergy or skin symptoms in COVID-19. According to research by Tamai *et al.*, a maculopapular rash emerged 11-22 days after the onset of COVID-19 symptoms in three patients. One received therapy with hydroxychloroquine and favipiravir for six days when the rash started. Without discontinuing medication, the erythema subsided, ruling out a drug-induced eruption.⁹

Chilblains are inflammatory skin manifestations caused by an unfavorable vascular response to the cold. The escalation of cases in Spain several weeks following the peak of COVID-19 cases generated concerns about a potential link to SARS-CoV-2. As a late sign of COVID-19, pseudo-chilblain lesions have been documented. They are typically seen in young individuals with minor symptoms.¹⁰

In acute severe cases, skin symptoms, such as an erythematous rash and local or widespread

urticaria, are the most prevalent. The underlying mechanism of the COVID-19 manifestations is difficult to distinguish (viral infection or new drug prescribed). Reported skin manifestations of COVID-19 are diverse, scattered, and sometimes confusing, making diagnosing difficult. However, COVID-19 infection can also be accompanied by pre-existing skin diseases that appear during hospitalization. Because of the same clinical picture, skin disorders caused by COVID-19 are challenging to distinguish from common skin disorders.

Conclusion

Clinical symptoms caused by COVID-19 infection are respiratory tract infections. Fever is the most common symptom encountered, followed by complaints of shortness of breath and cough. In addition to manifesting in the respiratory tract, it can also manifest on the skin. Skin manifestations are exanthematous rash, extensive urticaria and vesicles, and other skin disorders. These manifestations do not only appear in adults but can appear in children. Nevertheless, until now, it is still difficult to diagnose. Skin diseases can also accompany this COVID-19 infection.

References

1. Li. Q. Early Transmission dynamics in Wuhan, China of Novel Coronavirus Infected Pneumonia. *NEJM*. 2020;1199-07.
2. Rothan H.A. The epidemiology and pathogenesis of coronavirus disease (COVID-19) outbreak. *J Autoimmun.* 2020;1-4.
3. Wu Z, McGoogan JM. Characteristics of and Important Lessons From the Coronavirus Disease 2019 (COVID-19) Outbreak in China: Summary of a Report of 72314 Cases From the Chinese Center for Disease Control and Prevention. *JAMA*. 2020;**323**(13):1239-42.
4. Henry, D. Urticarial eruption in COVID-19 infection. *J Eur Acad Dermatol Venereol.* 2020;**34**(6):e244-e245.
5. S. Recalcati, Acral Cutaneous Lesions in the Time of COVID-19. *J Eur Acad Dermatol Venereol.* 2020;**34**(8):e346-e347.
6. Gianotti R., Zerbi P., Dodiuk-Gad R. Histopathological study of skin dermatoses in patients affected by COVID-19 infection in the Northern part of Italy. *J Cosmet Dermatol. Sci.*2020;**98**(2):141-3.
7. Galván Casas C, Català A, Carretero Hernández G, Rodríguez-Jiménez P, Fernández-Nieto D, Rodríguez-Villa Lario A, *et al.* Classification of the cutaneous manifestations of COVID-19: a rapid prospective nationwide consensus study in Spain with 375 cases. *Br J Dermatol.* 2020;**183**(1):71-7.
8. Rosell-Díaz A., Mateos-Mayo A., Nieto-Benito L., Balaguer-Franch I., De La Torre-Ruiz E.H., Lainez-Nuez A., Suárez-Fernández R., Bergón-Sendín M. Exanthema and eosinophilia in COVID-19 patients: Has viral infection a role in drug-induced exanthemas? *J Eur Acad Dermatol Venereol.* 2020;**34**:561.
9. Tamai M., Maekawa A., Goto N., Ge L., Nishida T., Iwahashi H., Yokomi A. Three cases of COVID-19 patients presenting with erythema. *J Dermatol.* 2020;**47**:1175-78.
10. Vázquez-Osorio I, Rocamonde L, Treviño-Castellano M, Vázquez-Veiga H, Ginarte M. Pseudo-chilblain lesions and COVID-19: a controversial relationship. *Int J Dermatol.* 2021;**60**(6):754-6. doi:10.1111/ijd.15422.