

CASE REPORT

Symmetrical Flexural and Intertriginous Exanthema: A Rare Manifestation Associated with COVID-19 Infection

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Summary

Cutaneous manifestations of Coronavirus disease (COVID-19) are variable. We present a case of non-drug related symmetrical flexural and intertriginous exanthema in a patient with COVID-19 infection. A 58-year-old Chinese male who was diagnosed to have COVID-19 infection, developed maculopapular erythematous rashes at bilateral axillary and inguinal folds on the fourth day of illness. He was treated symptomatically with anti-histamine and topical corticosteroid. The skin condition improved and he was discharged well on tenth day of illness. Although symmetrical flexural intertriginous exanthema is classically caused by drug reaction, this case demonstrated the possibility of the rash being directly associated with COVID-19 infection. More cohorts should be evaluated to fully describe the full spectrum of dermatological manifestation in COVID-19.

Key words: *Cutaneous, Rashes, Exanthema, COVID-19*

Introduction

Coronavirus disease (COVID-19) infection, which is caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), has become a global pandemic in 2020. It was first reported in December 2019 in Wuhan, China.¹ The typical symptoms of COVID-19 infections are fever, dry cough, anosmia, fatigue, and dyspnea. Serious complications include acute respiratory distress syndrome, secondary infection, thrombotic events, and multiorgan failure leading to death. Besides, cutaneous manifestations have been increasingly reported in COVID-19 patients.

A nationwide consensus study in Spain has classified the cutaneous lesions into five clinical patterns, which are acral areas of erythema with vesicles or pustules (19%), vesicular eruptions (9%), urticarial lesions (19%), maculopapular eruptions (47%) and livedo or necrosis (6%).² Wollina *et al.* have also suggested other possible cutaneous findings such as symmetrical flexural and intertriginous exanthema, purpuric rash, erythema multiforme-like rash, and Kawasaki like disease/Multisystemic inflammatory syndrome in children.³

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COVID-19 infection related skin manifestations were more commonly reported in United State and Europe countries compared to Asian cohort.⁴ Indeed, a systemic review of total 1211 patients with COVID-19 related skin manifestations, 39 (3.1%) patients were from Asian populations and 1172 (96.9%) patients were from Europe and the United States.⁴ Here, we would like to present a case of non-drug-related symmetrical flexural and intertriginous Exanthema in a patient with COVID-19 infection.

Case Report

A 58-year-old Chinese male presented with fever and cough for the past three days, followed by an alleged fall at home which he sustained a small laceration wound over the scalp. He attributed the fall to an alleged slippery floor with no obvious neurological deficits. He underwent wound suturing at a private hospital, uneventfully. Incidentally, pre-procedure nasopharyngeal swab showed SARS-CoV RNA PCR detected. (Ct value; E gene = 18.41, RdRp gene = 21.09). He was then transferred to a designated COVID 19 hospital for further management while the local health authorities performed contact tracing amongst his family members and friends. His fever and cough were resolved in the ward.

However, on the fourth day of illness, he developed blanchable maculopapular erythematous rashes at bilateral axillary and inguinal folds. The distribution of rash rapidly involved nape of the neck, forearm, anterior thigh, lower abdomen, and buttock symmetrically over the following days. (Figure 1 (a-d)) These lesions were mildly pruritic with no obvious discharges, vesicles, plaques or bullae noted. Notably, the face, trunk, palm, and sole were spared. He denied taking any medications before the onset of the rash. There was no prior incident of food allergies or documented family history of skin diseases.

His chest radiograph on admission was normal. Laboratory examination showed haemoglobin 15.6 g/dL, white cell counts 6.5×10^3 /uL (neutrophil 72.9%, lymphocyte 11.7%, absolute lymphocyte counts 0.76×10^3 /uL, monocyte 12.9%, eosinophil 2.0%, absolute eosinophil counts 0.13×10^3 /uL, basophil 0.5%), platelet 197, 000. Renal profile and liver function test were normal. C-reactive protein was 5.7 ng/L (<5.0). Dengue IgM/IgG were negative. Skin biopsy was not performed due to patient's consent not granted. He was treated symptomatically with Tablet Loratadine 10mg once daily and topical 0.1% Betamethasone -17-valerate.

Figure 1 (a-f). Maculopapular exanthema over the nape of the neck, axilla and inguinal region



On the tenth day of his hospital stay, the skin lesions showed improvement and he was subsequently discharged well.

Discussion

This case described a patient who developed skin rashes in the early phase of COVID-19 illness. The differential diagnosis that needs to be considered includes viral exanthem, drug-related, and systemic infection. The distribution of rashes was predominantly at the flexural region, which resembles symmetrical intertriginous and flexural exanthema, often due to exposure to the drug such as Beta-lactam antibiotic. However, in this case, the patient did not receive any antibiotics or other medications before or during hospitalization. He also denied having any history of atopy. The normal eosinophil count indicates the rash is less likely to be allergen related. In view that the skin condition appeared on Day 4 of illness with no other attributable factors, we concluded that this rash was due to post-viral infection, likely the COVID-19 virus.

Given various cutaneous manifestations in adult patients with COVID-19, histopathological examination via skin biopsy would provide additional information. Ahouach et al reported the presence of basal cell vacuolation and mild perivascular lymphocytic infiltrate in the skin biopsy obtained from a patient with similar skin condition.³ Unfortunately, skin biopsy was not performed as condition was improved and patient's consent was not granted.

Conclusion

In conclusion, various morphologies of cutaneous manifestations are associated with COVID-19. This case demonstrated an association between symmetrical flexural and intertriginous exanthema with COVID-19 infection. More cohorts should be evaluated to fully describe the full spectrum of dermatological manifestation in COVID-19.

Conflict of Interest Declaration

The authors have no conflict of interest to declare.

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References

1. Zhu N, Zhang D, Wang W, Li X, Yang B, Song J et al. A Novel Coronavirus from Patients with Pneumonia in China, 2019. *N Engl J Med* 2020;382:727-33.
2. 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;183:71-7.
3. Ahouach B, Harent S, Ullmer A, Martres P, Bégon E, Blum L et al. Cutaneous lesions in a patient with COVID-19: are they related? *Br J Dermatol* 2020;183:e31.
4. Tan SW, Tam YC, Oh CC. Skin manifestations of COVID-19: A worldwide review. *J Am Acad Dermatol Int* 2021;2:119-33.
5. Mawhirt SL, Frankel D, Diaz AM. Cutaneous Manifestations in Adult Patients with COVID-19 and Dermatologic Conditions Related to the COVID-19 Pandemic in Health Care Workers. *Curr Allergy Asthma Rep* 2020;20:75.