

## Case Report

# Skin manifestation of coronavirus disease 2019 (COVID-19): four cases from Bangladesh

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### Abstract

The ongoing pandemic of coronavirus disease 2019 (COVID-19) is presenting with a wide range of manifestations in different organs and systems of the human body. Various types of skin rashes are reported from different regions of the world. Here are four cases of COVID-19 presented with urticarial rash, erythematous patch, pruritic maculopapular lesions, and herpes zoster (HZ). In the case of HZ skin lesions appeared and diagnosed before appearing any characteristic COVID-19 feature. COVID-19 can be presented with different morphological types of skin rashes and during this pandemic, HS may be a predictor of this infection.

**Keywords:** COVID-19, cutaneous, urticaria, zoster.

### Introduction

COVID-19 is a highly contagious respiratory tract disease caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), which was first reported on December 1, 2019, from Wuhan, China.<sup>1</sup> The outbreak of COVID-19 has been declared a public health emergency of international concern by the World Health Organization (WHO) and presented as a great challenge for the health care communities across the globe.<sup>2</sup> From 31 December 2019 to 6 May 2021, 162,177,376 cases of COVID-19 (in accordance with the applied case definitions and testing strategies in the affected countries) have been reported, including 3,364,178 deaths.<sup>3</sup> In Bangladesh, the first case was declared in Dhaka on March 8, 2020. Bangladesh reported 780159 total cases and death 12,149 as of May 17, 2021.<sup>4</sup> High rates of infectivity, low virulence, and asymptomatic transmission have resulted in its rapid spread across geographic boundaries leading to a pandemic.<sup>5</sup> SARS-CoV-2 belongs to the broad family of viruses

known as coronaviruses.<sup>6</sup> It is a positive-sense single-stranded RNA (+ssRNA) virus, with a single linear RNA segment. Although COVID-19 appears to have a lower severity and mortality rate than two other previous human coronaviruses (CoV) infections (SARS-CoV and MERS-CoV), a subgroup of patients (particularly elderly people and those with underlying medical co-morbidities) develop a severe disease characterized by interstitial pneumonia and the rapid development of acute respiratory distress syndrome or septic shock with high levels of acute-phase reactants.<sup>7-8</sup> The virus enters cells through the angiotensin-converting enzyme 2 (ACE2) receptor, found on the surface of cells.<sup>9</sup> Lungs are the primary site of infection for COVID-19, with patients presenting symptoms ranging from mild flu-like symptoms to fulminant pneumonia and potentially lethal respiratory distress.<sup>10</sup> Understanding the disease course and prevalence of COVID-19 is important not only for medical but also

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for socioeconomic reasons. So far, COVID-19 has been understood as a multisystem disease, mainly affecting the lungs, kidneys, heart, vasculature, and also skin.<sup>11-12</sup> Recent literature suggests ACE2 is also located in the skin, which may explain some of the dermatologic manifestations in the setting of COVID-19 infection.<sup>12</sup> The first case of the cutaneous manifestations of COVID-19 was reported in early April 2020 by the dermatologists of Italy.<sup>13</sup> In this article we are reporting four cases of COVID-19 who presented with different cutaneous manifestations.

**Case 1 :**

A 19 years old lady presented to the dermatology department with severely pruritic erythematous urticarial rashes over different parts of the body mainly extremities (fig 1). She gave a history of initial low-grade fever, loose motion, mild cough for which she did not take any medical consultation but after five days she developed severe pruritic urticarial lesions on extremities, face, and trunk. However, no suspected triggering factor including infection, food allergy, drug allergy, chronic urticaria was noticed except SARS-COV-2 infection. Laboratory test revealed ESR 42 mm in 1st hour, WBC 12,000/cmm, platelet count 4,10,000/cmm, lymphocyte 16%, eosinophil 02%, normal liver and kidney function, increased CRP (39.10mg/dl) and D-Dimer (2890ng/ml). No abnormality was detected in the X-ray and high-resolution CT scan (HRCT) of the chest. Nasopharyngeal swab tested for SARS-COV-2 RNA amplification by real-time reverse transcription-polymerase chain reaction (RT-PCR) and was found positive. She was further treated for COVID with oral fexofenadine, tablet azithromycin, anticoagulant, and paracetamol. In subsequent days she promptly recovered.



**Figure 1. Urticarial lesion of COVID-19.**

**Case 2:**

A 39 years old female was admitted to the hospital due to fever, body ache, respiratory distress, loose motion, and macular erythema with severe pruritus. She stated that she was otherwise healthy when she

had a fever along with severe body ache. After two days she developed loose motion which persists for one day and followed by severe pruritus with macular erythema involving the flexor surface of both distal forearms (fig 2). As her condition did not improve she was admitted to the hospital. Laboratory test revealed raised ESR (63mm in 1st hour), leukocytosis (WBC 25,000/cmm), increased CRP (164.53mg/dl), increased D-Dimer (5975ng/ml), and ground-glass opacity in HRCT of the chest. Other laboratory tests were within normal limits including negative dengue antibodies. Nasopharyngeal swab tested for SARS-COV-2 RNA amplification resulted positive. She was managed with injectable Meropenam, Antiviral, Anticoagulant, and other drugs accordingly. After 5/6 days of hospital stay, she was discharged. At the time of her discharge, she had mild pruritus otherwise her condition was improved.



**Figure 2. Erythematous patches in COVID-19.**

**Case 3:**

A 34 years old lady consulted online for severely pruritic, hyperpigmented rashes involving mainly the trunk and the extremities. Two months back she lost her parents for COVID-19. At that time she also suffered from fever, sore throat, severe headache but without any skin lesion and tested positive for COVID-19. She recovered with home management and became COVID-19 negative after two weeks. But after about three weeks of the asymptomatic period, she again developed fever, body ache, and loose motion along with generalized pruritus. Her husband also complained of the same symptoms at the same time. A nasopharyngeal swab test was done and their RNA amplification for SARS-COV-2 became positive. After four to five days she noticed some pinpoint erythematous macules and papules first on extremities and then on the trunk associated with severe pruritus. Some of the lesions resolved with residual hyperpigmented patches (fig 3). All her laboratory reports were within the normal limit. She

was getting supportive treatment at home at the time of writing this case report.



**Figure 3: Pruritic macules and papules in COVID-19.**

#### Case 4

A 55 years old lady presented with multiple erythematous vesicular eruptions distributed unilaterally involving the right upper limb that follow a dermatome (fig 4). She complained of severe pain and burning sensation with mild pruritus and diagnosed as a case of herpes zoster. At that time she had no other symptoms. But after 2 days she developed fever, cough, body ache, and severe headache. Then she was advised to do the investigation related to COVID-19 infection. All blood parameters were normal except high D-Dimer (2.993 µg/ml) and positive for COVID-19. She was treated with antiviral which was given for herpes zoster and later on added oral anticoagulant along with other supportive treatment. Her skin rash started to resolve after 2 days of starting the antiviral drug but it took near about 12 days to get relief from cough and weakness.



**Figure 4: Herpes zoster in COVID-19.**

#### Discussion:

During the early part of the COVID-19 pandemic, the significant skin manifestation of COVID-19 was not noted but later a good number of articles have been

published from different parts of the world showing various types of cutaneous involvement though these early observations are not comprehensive.

The frequency of skin manifestation in COVID-19 cases in different studies is highly ambiguous. In the very first report of skin involvement of COVID-19, fairly higher (22.4%) Italian patients had skin involvement whereas in an article from China very low level (only 0.2%) COVID-19 positive patients had skin manifestation.<sup>13-14</sup> Recalcati noted different types of skin lesions including erythematous rash, generalized urticarial, and varicella-like rash. All of those lesions were mildly pruritic resolving in a few days and had no apparent correlation with disease severity.<sup>13</sup>

Different morphological types of skin lesions of COVID-19 have been reported from different parts of the world. These have been arranged into six classes: a. urticarial, b. confluent erythematous/maculopapular/morbilliform, b. papulovesicular exanthematous, c. chilblain-like, d. livedo reticularis/racemosa-like and e. purpuric “vasculitic”.<sup>15</sup>

In the first case, the patient presented with urticarial lesions. In a recent Spanish study over 375 cases of COVID 19% of skin lesions were of this type.<sup>16</sup> Other cutaneous presentations in that series were maculopapular eruptions (47%), acral areas of erythema with vesicles or pustules (pseudo-chilblain) (19%), other vesicular eruptions (9%), and livedo or necrosis (6%).<sup>16</sup>

The second and third cases presented with erythematous patches and maculopapular lesions on the trunk and extremities. This type of maculopapular lesions is the second most common skin lesion in COVID-19 infection whereas chilblain-like or “pseudo-chilblains” lesions are the commonest and characteristic lesion.<sup>17-18</sup>

The fourth case was diagnosed as Herpes zoster (HZ) which was followed by the appearance of other features of COVID-19 and was confirmed by RT-PCR. In Brazil during the pandemic period annual incidence of HZ has been increased by 35.4%.<sup>19</sup> In several reported cases HZ preceded the other features of COVID.<sup>20-21</sup> So it is very justified to exclude COVID-19 infection in cases presenting with HZ during the pandemic.

#### Conclusion:

Keeping COVID-19 in the differential diagnosis of a rash is the key because patients may be misdiagnosed by another entity. Dermatology's



outlook in the COVID-19 pandemic is multidimensional. It is important to make clinicians aware of the spectrum of dermatological manifestations of SARS-CoV2 infection, improving viral testing and clinical management.

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