

# Dermatological manifestations of COVID 19

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## Abstract

**Introduction** COVID 19 (SARS 2 virus) was first isolated in China in December 2019 from the specimen of patients presented with lower respiratory tract infection. It was declared a global pandemic on March 11, 2020. Coronavirus disease 2019 infected patients can presents with different dermatological manifestations even in some cases; the dermatological manifestation may be the only presenting complaints of the patients.

**Objective** To find dermatological manifestations in patients infected with COVID 19 virus.

**Methods** After getting ethical approval from the hospital ethical and research committee, all the tested positive for SARS 2 virus were included in the study. Strict precautionary measures were taken according to the WHO guidelines. Patients having any chronic dermatological disease in the past or having more than two weeks duration of any dermatological illness were excluded. Photographs were taken from the patients having any dermatological manifestations. These photographs were then shared with the consultant dermatologists of the unit by hiding the course of clinical illness of the patients. The expert opinion of the consultant was considered as the final one.

**Results** Mean age was 41,53 years $\pm$ 1.6008E1 (3 months to 85 years) with 160 males (65.6%) and 84 females (34.4%). Pseudo chilblains, maculopapular rash, vesicular rash, and urticarial rash were noted in 13.9%, 15.6%, 4.9%, and 7%, respectively. Oral cavity erythema, ulcers, and erosions were noted in 25%, 11.9%, and 14.3% of patients. Based on gender, the p-value was significant for maculopapular rash (p=0.02) and oral petechiae (p=0.04), while based on age, the p-value was significant for urticarial rash (p=0.01) and vesicular rash (p=0.03).

**Conclusion** COVID 19 is a severe form of viral illness with a fatal outcome. Dermatological manifestations may sometimes be the sole presenting complaints of the patients.

## Key words

COVID 19, dermatological manifestations, rash, SARS Cov-2 Virus.

## Introduction

In December 2019, it was found in Wuhan, China, that unexplained pneumonia was reported in patients, and later on, the SARS Cov-2 virus was isolated from the specimen collected from the lower respiratory tract. It was named coronavirus disease 2019 (COVID 19). China

imposed the most strict lockdown in history in Wuhan, but the virus continued to spread, and on March 11, 2020, it was declared a global pandemic.<sup>1,2</sup> The first calculated mortality rate was 2.2%. The first human-to-human transmission case was reported in the United States on January 30, 2020.<sup>3,4</sup>

As of this writing, the virus has infected over 182 million individuals worldwide, resulting in over 3.9 million deaths and a mortality rate of 0.5 percent to 10% in various parts of the world until July 1, 2021, 01:44 GMT4. Over 34

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million infected cases have been detected in the United States. Over 18.5 million instances have been documented in Brazil. Around 30.4 million infected cases were recorded in India.<sup>5</sup>

Pakistan is one of the top 30 countries globally, with over 9.5 million COVID 19-positive cases. The first case was recorded on February 26, 2020, and by July 1, 2021, Pakistan had received 9,57,371 infected cases, resulting in over 22,000 deaths.<sup>5,6</sup>

Cutaneous involvement is reported in various studies, from urticarial rash to chickenpox like vesicles. Recalcati S reported cutaneous involvement in 20.4% (18/88) of patients.<sup>7</sup>

Locally in Pakistan, there is limited data available on the cutaneous involvement of COVID 19. This study will provide a base for future research in this regard.

## Material and Methods

After taking informed consent from the hospital ethical and research committee, data for the dermatological manifestation of this study were collected in three months, i.e. April 20, 2020, to July 20, 2020, when COVID 19 pandemic was at its peak In Pakistan. Data was collected in the Isolation department for the COVID 19 patients by the resident dermatologist of the Khyber teaching hospital Peshawar. Most of them were relocated to the Isolation department for the care of COVID 19 affected patients. Patients with SARS-CoV-2 detected on PCR were included in the study. Those patients who developed mucocutaneous eruptions of less than two weeks duration with no clear explanation having no past history for any chronic dermatological disease were included in the study. Patients with a history of chronic dermatological disorders or patients with a history of any recurrent coetaneous eruptions with a duration of more

than two weeks or suspected cases with negative SARS-CoV-2 PCR were excluded from the study. A standard purposefully predesigned proforma was used for the collection of data. In most of the cases, photographs were also taken. The photographs were then reviewed by the consultant dermatologist Khyber teaching Hospital without knowing the rest of the clinical information. Thus a consensus was developed on the dermatological manifestations of the COVID 19.

All the data was entered into Excel and was analyzed by SPSS version 22. Mean and standard deviations were calculated for numerical variables, while frequency and percentages were calculated for the categorical variables. For the comparison of the categorical variables, the Chi-square test was applied, while for the comparison of the numerical variables student t-test was applied. The statistical significance level was considered as  $p \leq 0.05$ . Strict exclusion criteria were followed in order to avoid any biased or confounding factors in the study.

## Results

A total of 244 SARS-CoV-2 PCR detected patients were included in the study. Among these patients, 160 patients (65.6%) were male and 84 (34.4%) were females (**Table 1**).

The mean age was 41.53 years $\pm$ 1.6008E1 (3 months to 85 years). Patients were divided into four groups based on age. A maximum number of patients, 51.6%, were included in the aged group 19 to 40 years, while the minimum number of patients, 5.3%, were included in the

**Table 1** Distribution of patients on basis of gender.

<i>Gender of patients</i>	<i>Frequency (%)</i>
Male	160 (65.6%)
Female	84 (34.4%)
Total	244 (100)

**Table 2** Age-wise distribution of patients.

Age of patients	Frequency (%)
<18 Years	13 (5.3%)
19-40 years	126 (51.6%)
41-60 years	66 (27%)
Above 61 years	39 (16%)
Total	244 (100%)

group less than 18 years old (**Table 2**).

Acral areas of erythema and edema with some pustules or vesicles (pseudo chilblains) were noted in 23 patients (13.9%). Most of them were noted on the hands and feet and were asymmetrical. Thirty-eight patients (15.6%) were reported with maculopapular rash. Sixteen patients (6.6%) and nine patients (3.7%) had a papular rash and macular rash. Twelve patients (4.9%) were found with a vesicular rash. Most of the vesicles were group together, and most were on the trunk and acral parts of the body. Urticarial wheals were also found in 17 patients (7%). Forty-one patients (16.8%) were complaining of itching. It was not specific, and there was no excoriation on the body. Fourteen patients (5.7%) were presented with petechiae. Twenty-five (10.2%) were complaining of generalized burning sensation.

In the oral cavity, erythema was found in 61 patients (25%). Twenty-nine patients (11.9%) were found with oral ulcers, while 35 patients (14.3%) had oral erosions, including the erosion of the tongue. Thirty-six patients (14.8%) were noted with oral thrush, and 39 patients (16%) were found with oral petechiae (**Figure 1,2**).

### Discussion

Racalcati *et al.* concluded in their study that there was a dermatological manifestation in 20.4% of patients. They also found that erythematous rash was observed in 16% of patients while urticarial rash was seen in 3.4% of patients. In our study, the maculopapular rash was observed in 15.6% of patients, consistent



**Figure 1** Cutaneous manifestation of COVID 19.



**Figure 2** Purpuric rash in COVID 19 infected patient.

with Racalcati *et al.*<sup>7</sup>

Galvan Casas C *et al.* conducted a study on the dermatological manifestations of COVID 19. They concluded that 19% of their patients had pseudo chilblains, while in our study, 13.9% of patients were observed with pseudo chilblains<sup>8</sup>. However, they have reported 47% cases with maculopapular rash, while in our study, 15.6% of cases were reported with pseudo chilblains.<sup>8</sup>

Tammaro AN *et al.* reported 5% of patients with vesicular eruptions, while in our study, 4.9% of patients were presented with vesicular eruption, which is consistent with our study.<sup>9</sup> Manalo IF *et al.* reported vesicular, urticarial eruptions in their study, which also supports the findings of our study.<sup>10</sup> Bouaziz JG *et al.* reported 7% of patients with urticaria and 14% of suspected COVID 19 cases with pseudo chilblains, which are also consistent with the results of our study.<sup>11</sup> Fernandez-Nieto D *et al.* reported 15.9% of cases with erythematous rash, which was consistent with the results of our study. He also reported 3.4% of patients with vesicular and urticarial lesions, which are close to the results of our study.<sup>12</sup> Recalcati S *et al.* reported the first case of pseudo chilblains from Europe. They also reported 14% cases of erythematous papular eruption, which are also almost consistent with our study.<sup>13</sup>

Henry D reported some cases of urticarial eruptions in COVID 19 patients, while in our study, 6.6% of patients had documented urticarial rash.<sup>14</sup> Just after the COVID 19 pandemic declaration, Heodu M *et al.* commented on the Recalcati S comments with cases of pseudo chilblains, urticarial and maculopapular rashes.<sup>15</sup> De Masson A *et al.* declared pseudo chilblains is a common cutaneous finding (75%) in COVID 19 patients. They concluded that vesicular rash was 14%, morbilliform rash in 9%, while the petechial rash in 3% of cases. The latter is close to the results of our study, i.e., 5.7% petechial rash.<sup>16</sup> Galvan *et al.* reported 49% cases of itching, 5.12% of burning sensation, while in our study, itching was documented in 16.8% of cases and burning sensation in 10.2% of cases.<sup>17</sup> Landa N *et al.*<sup>1</sup> also reported burning in 33% of patients while pseudo chilblains in 100% of patient.<sup>18</sup> Similarly, Marzano *et al.* reported a 10% of burning sensation in COVID 19 patients which is consistent with the results of our study<sup>19</sup>, i.e.,

10.6%. Piccolo M *et al.* concluded that 27% and 21% of their patients were complaining of itching and itching with pain which also justifies our results for itching in COVID 19 patients.

## Conclusion

COVID 19 is an important health problem and can cause significant mortality. Pseudo chilblains, vascular eruptions, erythematous macular rash, and urticaria are some of the presenting symptoms, according to research data. We have concluded that in Pakistan, dermatological manifestations of COVID 19 may vary, and dermatologists and other physicians should be very careful regarding the precautionary measures while examining any dermatological patients. Although, there is limited data available both locally and internationally on the mucosal manifestation of COVID 19; this study may form a future platform in this regard.

**Recommendations** Further studies are recommended on the topic, particularly on the mucosal manifestation of COVID 19 with large sample sizes. Studies on the relationship of mucocutaneous association with the severity of COVID 19 are also recommended.

## References

1. Lipsitch M, Swerdlow DL, Finelli L. Defining the epidemiology of Covid-19-studies needed. *N Eng J Med.*2020;**382(13)**:1194-6.
2. Dong Y, Mo X, Hu Y, Qi X, Jiang F, Jiang Z, Tong S. Epidemiology of COVID-19 among children in China. *Pediatrics.*2020;**145(6)**:e20200702.
3. Rothan HA, Byrareddy SN. The epidemiology and pathogenesis of coronavirus disease (COVID-19) outbreak. *J Autoimmun.*2020;**109**:102433.
4. Rodriguez-Morales AJ, Cardona-Ospina JA, Gutiérrez-Ocampo E, Villamizar-Peña R, Holguin-Rivera Y, Escalera-Antezana JP, Alvarado-Arnez LE, Bonilla-Aldana DK, Franco-Paredes C, Henao-Martinez AF,

- Paniz-Mondolfi A. Clinical, laboratory and imaging features of COVID-19: A systematic review and meta-analysis. *Travel Med Infect Dis.*2020;**34**:101623.
5. World health organization report on Covid 19. World health Organ, July 01, 2020.
  6. Rana W, Mukhtar S, Mukhtar S. Mental health of medical workers in Pakistan during the pandemic COVID-19 outbreak. *Asian J Psychiatr.*2020;**51**:102080.
  7. Recalcati S. Cutaneous manifestations in COVID-19: a first perspective. *J Eur Acad Dermatol Venereol.*2020;**34(5)**:e212-e213.
  8. Galván Casas C, Catala AC, 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
  9. Tamaro AN, Adebajo GA, Parisella FR, Pezzuto A, Rello J. Cutaneous manifestations in COVID-19: the experiences of Barcelona and Rome. *J Eur Acad Dermatol Venereol.*2020;**34(7)**:e306-e307.
  10. Manalo IF, Smith MK, Cheeley J, Jacobs R. A dermatologic manifestation of COVID-19: transient livedo reticularis. *J Am Acad Dermatol.*2020;**83(2)**:700.
  11. Bouaziz JD, Duong T, Jachiet M, Velter C, Lestang P, Cassius C, *et al.* Vascular skin symptoms in COVID-19: a french observational study. *J Eur Acad Dermatol Venereol.*2020;**34(9)**:e451-e452.
  12. Fernandez-Nieto D, Ortega-Quijano D, Segurado-Miravalles G, Pindado-Ortega C, Prieto-Barrios M, Jimenez-Cauhe J. Comment on: Cutaneous manifestations in COVID-19: a first perspective. Safety concerns of clinical images and skin biopsies. *J Eur Acad Dermatol Venereol.* 2020;**34(6)**:e252-e254.
  13. Recalcati S, Barbagallo T, Frasin LA, Prestinari F, Cogliardi A, Provero MC. Acral cutaneous lesions in the time of COVID-19. *J Eur Acad Dermatol Venereol.* 2020;**34(8)**:e346-e347.
  14. Henry D, Ackerman M, Sancelme E, Finon A, Esteve E. Urticarial eruption in COVID-19 infection. *J Eur Acad Dermatol Venereol.*2020;**34(6)**:e244-e245.
  15. Hedou M, Carsuzaa F, Chary E, Hainaut E, Cazenave-Roblot F, Masson Regnault M. Comment on “Cutaneous manifestations in COVID-19: a first perspective” by Recalcati S. *Eur Acad Dermatol Venereol.*2020; **34(7)**:e299-e300.
  16. de Masson A, Bouaziz JD, Sulimovic L, Cassius C, Jachiet M, Ionescu MA *et al.* Chilblains is a common cutaneous finding during the COVID-19 pandemic: A retrospective nationwide study from France. *J Am Acad Dermatol.*2020;**83(2)**:667-70
  17. Galvan Casas C, Catala A, Carretero Hernandez G, *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.
  18. Landa N, Mendieta-Eckert M, Fonda-Pascual P, Aguirre T.Chilblain-like lesions on feet and hands during the COVID-19 pandemic. *Int J Dermatol.*2020;**59**:739-43.
  19. Marzano AV, Genovese G, Fabbrocini G *et al.* varicella like exanthem as a specific COVID 19 associated skin manifestation. Multicenter case seriesof 22 patients. *J Am Acad Dermatol.*2020;**83(1)**:280-5.