



**MAGNITUDE OF DERMATOLOGICAL MANIFESTATIONS OF COVID-19 IN
TERTIARY CARE HOSPITAL IN PUDUCHERRY**

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ABSTRACT

Introduction: COVID-19 came as a grave pandemic in December 2019, shaking the entire world and leading to tremendous morbidity and mortality. Though the primary symptoms were respiratory leading to pneumonia but increased dermatological manifestations were also seen in many COVID positive patients. These were reported in the form of various types of exanthems and enanthems. Though there is limited data regarding the pathogenesis for these and exact correlation is yet to be proved, we have conducted a study to evaluate the dermatological manifestations related to COVID-19 at a tertiary care hospital in Puducherry. **Aim and Objectives:** To find the most common dermatological presentations in COVID-19 patients. To assess the temporal relationship of dermatological and systemic manifestations of COVID-19 and to compare the correlation between the severity of systemic complaints and dermatological manifestation in COVID-19 patients. **Materials and Methods:** A cross-sectional study was performed in the dermatology OPD, a total of 300 participants were included over a period of six months. The study included all consecutive consenting patients aged 7 to 90 years with RT-PCR positive who were previously diagnosed COVID-19 attending dermatology OPD and of both sexes. Pregnant women were excluded from the study. **Results:** Out of 300 participants, male preponderance was seen (65%). 41 patients (13.6%) were admitted in the ICU. Comorbidities like diabetes mellitus were seen in 71 patients (23.6%) and 22 (7%) had hypertension. The CT severity score was mild moderate and severe in respect of 3.6%, 11.6% and 5%. Urticarial rash was seen in 3 patients, maculopapular rash in 9 and chilblains in 2 patients. Mucosal involvement was seen in 14 (4.6%) patients. 197 (65.6%) showed COVID associated hairfall. **Conclusion:** Cutaneous manifestation may be the primary sign of patients suffering from Covid-19 and could have an association with the severity of the disease and therefore should not be missed.

KEYWORDS: COVID-19, Exanthem, morbilliform, chill-blain.

INTRODUCTION

In December 2019, a novel zoonotic RNA virus named "severe acute respiratory syndrome coronavirus 2" (SARSCoV-2) was isolated in patients with pneumonia in Wuhan, China. Since then, the disease caused by this virus, called "coronavirus disease-19" (COVID-19), has spread throughout the world at a staggering speed becoming a pandemic emergency.^[1] Although COVID-19 is best known for causing fever and respiratory symptoms, it has also been reported to be associated with different extrapulmonary manifestations, including dermatological symptoms.^[2] Whilst the COVID-19-associated cutaneous manifestations have been increasingly reported, the exact incidence is yet to be estimated, the pathophysiological mechanisms are largely unknown and the role, direct or indirect, of SARSCoV-2 in its pathogenesis is still debated. Furthermore, evidence is accumulating that skin

manifestations associated with COVID-19 are extremely polymorphic and varied.

In this regard, studies proposed the following six main clinical patterns of COVID-19-associated cutaneous manifestations (i) urticarial rash, (ii) confluent erythematous/maculopapular/morbilliform rash, (iii) papulo-vesicular exanthem, (iv) chilblain-like acral pattern, (v) livedo reticularis/racemosa-like pattern, (vi) purpuric "vasculitic" pattern.^[2] Other authors have attempted to bring clarity in this field, suggesting possible classifications of COVID-19 associated cutaneous manifestations. Finally, distinguishing entities "truly" associated with COVID-19 from cutaneous drug reactions or exanthems due to viruses other than SARS-CoV-2 remains debatable.

Here, this study is striven to provide an overview of the cutaneous manifestations associated with COVID-19 in a tertiary care hospital in Puducherry. There are geographical differences in the morphology and prevalence of reported COVID-19 associated skin manifestations while genetic differences may play a role in the development of cutaneous manifestations and different types of lesions may be predictive of outcomes proving this association may help understand the pathophysiological mechanisms thereby providing screening and help reduce the systemic manifestations of the disease.

This study was thus carried out with an aim to find the most common dermatological presentations in COVID - 19 patients and to assess the temporal relationship of dermatological and systemic manifestations of COVID-19 and to compare the correlation between the severity of systemic complaints and dermatological manifestation in COVID19 patients.

MATERIALS AND METHODS

This was a Cross sectional study conducted in the dermatology OPD, of a tertiary care hospital in Puducherry for a period of six months from October 2021-March 2022. The study included 300 participants who were all consenting patients aged 7 to 90 years with RT-PCR positive previously diagnosed COVID-19 disease attending dermatology OPD and of both sexes. Pregnant women were excluded from the study.

A detailed history including time of onset, duration, the site, type and extent of the dermatosis was noted. Association between dermatological manifestation and COVID-19 was evaluated.

RESULTS

Out of 300 participants, 195 were males and 105 were females. All the participants were COVID positive and dermatological manifestations were seen in 6% (19) patients after around 5 days – 2 weeks period of RT-PCR test. Out of 300 participants, 13.6% (41) showed ICU admission. Comorbidities like diabetes mellitus were seen in 71 (23.6%) and 22 had hypertension (7%). Mild CT

severity score was seen in 11 (3.6%) patients, moderate in 35 (11.6%) and severe in 15 (5%) patients, as shown in figure 1.

There was no association found between the presence of cutaneous manifestation and comorbidities of the patient.

Cutaneous manifestations were present in 14 patients. Urticarial rash was seen in 3 patients, maculopapular rash in 9 and chilblains in 2 patients. The average age group ranged from 33+4 with the average age group from 30-40. Mucosal involvement was seen in 14 (4.6%) patients. 197 (65.6%) patients showed COVID associated hairfall. No palm and sole involvement was seen in any patient.

Patients who had chilblain variety of lesions had a higher severity score than those compared to patients with other lesions.

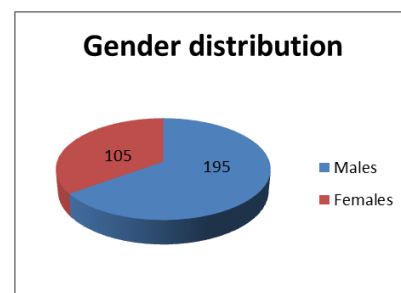


Figure 1: Gender distribution.

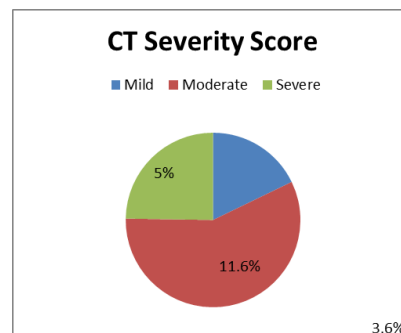


Figure 2: CT severity score.



Figure 3.



Figure 4.

DISCUSSION

COVID-19 came as a pandemic across the world with predominant respiratory symptoms. But, as the pandemic progressed, many extra-pulmonary manifestations were also observed. These also included various dermatological manifestations.^[2] Various reports suggest that the incidence of skin lesions in COVID-19 ranges from 1-20%.^[3] These include urticarial, maculopapular, morbilliform rash, papulovesicular exanthems etc.

In our study, male predominance was seen, this finding correlated with that observed by Dalal et al^[4] that reported 95 males out of 102 and Sukhavasi et al^[5] that also showed 626 males.

In our study, 6% patients had dermatological manifestations whereas in a study by Dalal et al 12.7%, by Sukhavasi et al 4.51% whereas it was as high as 36.1% in a study by Sachdeva M et al^[6] Dalal et al reported, Three (2.9%) patients with maculopapular rash, two (1.9%) with urticarial lesions and eight (7.8%) patients with itching, with no palm, sole and mucosal involvement. In the study by Sukhavasi et al, the most common symptom was itching (70.83%), followed by vesiculopapular rash, acral erythema, maculopapular rash, irritant contact dermatitis, aphthous ulcer, purura. The COVID disease severity was mild in 88.08% of patients whereas in our study, the disease was severe in 11.6% cases.

In a review article by Panda et al,^[7] the commonest dermatological manifestation reported was chilblain-like symptoms followed by maculopapular rash and urticaria. In a study by Michael et al,^[8] 16% patients had maculopapular rash whereas pruritis occurred in 92% cases. Studies show an increased rate of hair fall post COVID-19.^[9] The prevalence of alopecia was seen in 28.6% in a study in Wuhan by Xiong Q et al.^[10]

Studies showed that skin manifestations among patients with COVID-19 was 6.6% among 1,293 patients in Europe and 0.2% among 1,328 patients in Asia.^[11] A

study by Muhammad A et al found a significant association ($p=0.03$) between COVID-19 disease severity and the prevalence of specific skin lesions. Amongst patients with specific findings, only 9% had mild COVID-19 whereas the disease severity was moderate in 20.4%, severe in 38.6% and critical in 31.8%.^[12]

CONCLUSION

Cutaneous lesions of Covid 19 nearly occur at the same period of other viral symptoms, this may suggest that lesions may be a diagnostic sign for COVID-19. The mere occurrence of skin manifestations in COVID-19 patients is not an indicator for the disease severity, and it may depend on the type of skin lesions, therefore a strong suspicion should be kept in mind while examining cutaneous lesions in febrile individuals.

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