

Dermatological Aspects of COVID-19

Alina Sharma^{a,b}

Introduction:

On 31 December 2019, Wuhan, the capital city of Hubei Province in China reported World Health Organization(WHO) about cases of pneumonia which were caused by a severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2)[1] currently designated coronavirus disease (COVID-19).[2] The infection rapidly spread throughout the world escalating the situation and WHO eventually declared COVID-19 as a global pandemic on 11 March 2020. [3] It has already affected almost all aspects of health and society globally. With the current pandemic, dermatologists should be aware of dermatological aspects of SARS-CoV-2, its skin manifestations and general skin care.

Cutaneous manifestations in COVID-19 patients:

The SARS-Cov-2 primarily affects the respiratory system, but currently numerous cutaneous manifestations of this viral infection are reported.[4] Incidence of cutaneous manifestations among confirmed COVID-19 cases was 20.4% among total 88 COVID-19 patients as per an Italian study conducted by Recalcati et al.[4] The trunk was the main involved region, pruritus was minimal and usually lesions healed within a few days. The study reported no correlation of cutaneous manifestations with disease severity. A recent study done in Spain has classified cutaneous features of COVID-19 as Acral areas of erythema with vesicles or pustules (Pseudo-chilblain or Covid toes), vesicular eruptions,

urticarial lesions, maculopapular eruptions and livedo or necrosis. A commonly observed cutaneous feature was maculopapular or morbilliform rash in 47% of cases among 375 cases.[5] The timing of eruption of skin lesion ranged from three days before COVID-19 diagnosis to 13 days after diagnosis and lesion usually healed within 14 days.[6] The mechanism of cutaneous disturbances by COVID-19 is not yet properly understood but some theories postulate that viral particles present in the cutaneous blood vessels in patients could lead to a lymphocytic vasculitis induced by blood immune complexes that activate cytokines. The virus does not directly target the keratinocyte, but rather immune response to infection leads to Langerhans cells activation, resulting in a state of vasodilatation and spongiosis. It was also suggested that livedo reticularis could probably be due to the accumulation of micro thromboses originating in other organs.[6]

In Nepal, COVID-19 positive cases are increasing rapidly. The dermatologists must be aware of and cautious about skin lesions and the possibility of COVID-19 infection for prompt diagnosis and appropriate management. However, these rashes must be differentiated from drug rashes due to antivirals or other drugs used for the disease. It is desirable that physicians be aware of cutaneous manifestations for prevention of misdiagnosis. Joob B et al. from Thailand reported a case initially diagnosed as dengue based on skin rash with petechiae, which was later confirmed to be COVID-19.[7] Similarly, the clinical features of COVID-19 in younger age group may overlap with Kawasaki disease.[8] As the incubation period of COVID-19 is around 14 days, during which most of the cases are asymptomatic, knowledge of cutaneous manifestations may help as an early indicator for timely diagnosis especially in countries like ours with limited available tests.[2,6]

Patients suffering from skin disease receiving immunosuppressive medications:

In patients with no other co-morbidities, there is little specific evidence of COVID-19 infection being aggravated by immunomodulators, but a

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a - Consultant Dermatologist,

b - Palpa District Hospital, Palpa, Nepal.

Corresponding Author:

Alina Sharma

e-mail: alina.amelia@gmail.com

ORCID: <https://orcid.org/0000-0002-7529-6630>

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precaution must be taken as any secondary bacterial infection as part of COVID-19 may be aggravated by its concurrent use.[9]

American Academy of Dermatology (AAD) recommends that patients should not stop their ongoing systemic immunosuppressive therapy who have not tested positive or have no signs and symptoms of COVID-19, however indication, age and other co-morbidities should be considered and risk should be outweighed. For patients who have tested positive, AAD recommends to postpone or discontinue using immunosuppressive therapies. [10] British Association of Dermatologists (BAD) has also provided guidelines for patients on immunosuppressive medications. Patients at definite high risk (extremely vulnerable people), who are of old age or with other co-morbidities, having two or more immunosuppressive medications should undergo shielding with self-isolation up to 12 weeks. Well-controlled patients with minimal disease activity and no co-morbidities who are being treated with single agent of immunosuppressant or biologics or topical treatment need to maintain social distancing.[11] In confirmed cases of COVID-19 infection who are on systemic steroids for dermatological disorders, it can be continued with tapering doses.[9]

The national guidelines from Society of Dermatologists, Venereologists and Leprologists of Nepal (SODVELON) suggests discontinuation of immunosuppressants and immunomodulators like Rituximab if viral symptoms are present, whereas discontinuation of immunomodulator like Apremilast only if severe symptoms appear.[12]

Thus, risk versus benefit ratio must be carefully weighed having original indication, elderly people and co-morbidities in mind before prescribing any immunomodulators or immunosuppressants in this era of pandemic. If possible, lowest dose possible or alternative drugs should be preferred and patients must be properly counselled about risks and necessity of shielding or self-isolation.

Skin problems in healthcare professionals dealing with COVID-19 patients:

COVID-19 is primarily transmitted by droplets however transmission through surface contact is also not denied.[13] As skin is the first line of defense, maintaining integrity of skin must be of foremost priority to prevent contact transmission. [14]

In a study done in China among frontline

health workers during this pandemic, occurrence of skin lesions was closely associated with the level of protection, working frequency and duration of wearing protective suits.[15] Frequent hand hygiene practice and prolonged wearing of gloves can make the skin over the hands vulnerable increasing the risk of allergic and irritant contact dermatitis. Aggravation of previous skin diseases has also been observed. After prolonged contact with masks and goggles, skin lesions ranging from contact and pressure urticaria to contact dermatitis have been reported.[16] The heat and high humidity in the summer season can add to the skin problems associated with personal protective equipment (PPE) use and could possibly induce miliaria.[17]

For the frontline workers; fewer working hours, well fitted and comfortable PPE, prophylactic dressing, preference of soap-based cleanser over alcohol-based hand rub and frequent moisturization of skin could be helpful for maintaining skin integrity.

Conclusion:

With COVID-19 spreading rapidly in the country, all healthcare professionals need to be prepared for cases in the hospitals and community both. In our regular practice, aerosol generating procedures, cosmetic procedures and non-emergency dermatologic surgical procedures can be postponed during this period. Out-patients are to be examined only after basic screening and with proper personal protective measures. As the duration of the pandemic cannot be predicted, strategies should be framed for future course of action including dermatology practice for the benefit of both patients and physicians.

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