

## Cutaneous Manifestations of COVID-19: A Systematic Review

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**Background:** Coronavirus Disease 2019 (COVID-19), caused by severe acute respiratory syndrome coronavirus 2 (SARS-Cov-2), is currently a pandemic. Although pulmonary health has been the primary focus of studies during the early days of COVID-19, development of a comprehensive understanding of this emergent disease requires knowledge of all possible disease manifestations in affected patients.

**Methods:** This PRISMA-compliant review focuses on cutaneous manifestations reported in COVID-19 patients. Literature review was conducted using the PubMed database to examine various cutaneous manifestations related to the SARS-CoV-2 infection. Published articles related to search criteria from the onset of the COVID-19 pandemic to June 30, 2020 were included. In total 56 articles were used for data collection.

**Results:** Unique to many other symptoms of COVID-19, its cutaneous manifestations have been found in people of all age groups including children. The cutaneous manifestations of COVID-19 are varied and include maculopapular, chilblain-like, urticarial, vesicular, livedoid, and petechial lesions. In addition, rashes are common in multisystem inflammatory syndrome in children (MIS-C), a new and serious health condition that shares symptoms with Kawasaki disease and is likely related to COVID-19. Lastly, personal protective equipment (PPE)-related skin complications are of serious concern since broken cutaneous barriers can create an opening for potential COVID-19 infections and by inadvertently spreading the virus.

**Conclusion and Potential Impact:** As this virus continues to spread silently, mainly through asymptomatic carriers, an accurate and rapid identification of these cutaneous manifestations may be vital to early diagnosis and lead to possible better prognosis in COVID-19 patients. This systematic review provides a detailed analysis on the changes in skin morphology related to COVID-19 and discusses plausible underlying molecular mechanisms. Study of these cutaneous manifestations, their pathogenesis as well their significance in human health will help define COVID-19 in its entirety which is a prerequisite to its effective management.