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## Evidence Search Service Results of your search request

**Clinical Evidence on the Impact of Covid-19 on skin Integrity**

Thank you for requesting this evidence search. We hope you find the results useful. If you would like to discuss the findings or require an additional search, please contact: Luca Filippi ([luca.filippi@nhs.net](mailto:luca.filippi@nhs.net))

Please acknowledge this work in any resulting paper or presentation as*: Evidence search: Clinical Evidence on the Impact of Covid-19 on skin Integrity,* Luca Filippi (March 2021). East Surrey Hospital, UK: Surrey and Sussex Library and Knowledge Services.

## Summary

There are some articles that discuss Covid-19 and dermatology in relation to both patients and staff. These results have not been excluded from the search.

Almost all of these articles are freely available online.

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**A. Systematic Reviews**

*Advances in Wound Care*

**Cutaneous Manifestations of COVID-19: A Systematic Review.** (2021)

Singh H. et al.

[https://4223623.odslr.com/resolver/full?sid=OVID:medline&id=pmid:33035150&id=doi:10.1089%2Fwound.2020.1309&issn=2162-1918&isbn=&volume=10&issue=2&spage=51&pages=51-80&date=2021&title=Advances+in+Wound+Care&atitle=Cutaneous+Manifestations+of+COVID-19%3A+A+Systematic+Review.&aulast=Singh&pid=%3Cauthor%3ESingh+H%3BKaur+H%3BSingh+K%3BSen+CK%3C%2Fauthor%3E%3CAN%3E33035150%3C%2FAN%3E%3CDT%3EJournal+Article%3C%2FDT%3E](https://www.knowledgeshare.nhs.uk/index.php?PageID=link_resolver&link=0920f42fa08179d46e65f3ecf9b5e0c5)

[https://4223623.odslr.com/resolver/full?sid=OVID:medline&id=pmid:33035150&id=doi:10.1089%2Fwound.2020.1309&issn=2162-1918&isbn=&volume=10&issue=2&spage=51&pages=51-80&date=2021&title=Advances+in+Wound+Care&atitle=Cutaneous+Manifestations+of+COVID-19%3A+A+Systematic+Review.&aulast=Singh&pid=%3Cauthor%3ESingh+H%3BKaur+H%3BSingh+K%3BSen+CK%3C%2Fauthor%3E%3CAN%3E33035150%3C%2FAN%3E%3CDT%3EJournal+Article%3C%2FDT%3E](https://www.knowledgeshare.nhs.uk/index.php?PageID=link_resolver&link=0920f42fa08179d46e65f3ecf9b5e0c5)

Objective: 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. This Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA)-compliant review focuses on cutaneous manifestations reported in COVID-19 patients. Approach: Literature review was conducted using the PubMed database to examine various cutaneous manifestations related to the SARS-CoV-2 infection. Published articles (n = 56) related to search criteria from the onset of the COVID-19 pandemic to June 30, 2020, were included. The primary literature articles included in this study were mainly from France, Spain, Italy, and the United Kingdom. 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, a new and serious health condition that shares symptoms with Kawasaki disease and is likely related to COVID-19. In addition, personal protective equipment-related skin wounds are of serious concern since broken cutaneous barriers can create an opening for potential COVID-19 infections. Innovation and Conclusion: 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 and photo atlas provide a detailed analysis of the skin pathologies related to COVID-19. Study of these cutaneous manifestations and 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.

*Cureus*

**Dermatological Manifestations in Patients With SARS-CoV-2: A Systematic Review** (2020)

Abdulelah Almutairi

[Available online at this link](https://www.knowledgeshare.nhs.uk/index.php?PageID=link_resolver&link=d4d3ab587d8acde9a8b45f4952e69d3b)

[Available online at this link](https://www.knowledgeshare.nhs.uk/index.php?PageID=link_resolver&link=d4d3ab587d8acde9a8b45f4952e69d3b)

Severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) has been initially defined as a disease of the respiratory tract; however, with the increasing number of patients and announcing that the virus became a pandemic, new systemic clinical manifestations are observed, including dermatological manifestations. However, the identification and characteristics of these manifestations are still controversial. This review article aims to evaluate the medical literature and explore the dermatological clinical manifestations in patients with SARS-CoV-2. The literature was reviewed through MEDLINE®, Ovid, PubMed®, and Embase®. Searching terms included were a combination of "dermatological" OR "skin" AND "symptoms" OR "manifestations" AND "SARS-CoV-2". The following step was filtering the results to include only original research studies investigating the different types of skin and dermatological clinical manifestations in patients with SARS-CoV-2. A total of 879 studies were retrieved. Following the exclusion of studies on animals and including only studies on humans, 32 studies emerged. Altogether, seven studies were identified as eligible, covering 555 patients with SARS-CoV-2 who had dermatological symptoms. Three studies were retrospective, two studies were prospective, and two studies were case series. Different types of dermatological lesions can occur in patients with SARS-CoV-2, most commonly erythema, urticaria, and varicella-like rash. Dermatological manifestations with SARS-CoV-2 can be misdiagnosed with other conditions. Further studies with robust design are needed.

*Journal of the European Academy of Dermatology and Venereology*

**COVID-19 and cutaneous manifestations: a systematic review** (2020)

Qing Zhao et al

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COVID-19 and cutaneous manifestations: a systematic review. The cutaneous manifestations of COVID-19 patients have been increasingly reported, but not summarized, and the potential mechanisms remain to be investigated. Herein, we performed a comprehensive review of literatures (from inception to 30 May 2020) using PubMed, CNKI, medRxiv and bioRxiv with the terms "((novel coronavirus) OR (2019 novel coronavirus) OR (2019-nCoV) OR (Coronavirus disease 2019) OR (COVID-19) OR (SARS-CoV-2)) AND ((Dermatology) OR (skin) OR (rash) OR (cutaneous))" and "((ACE2) OR (Angiotensin-converting enzyme)) AND ((skin) OR (epidermis) OR (dermis))." Totally, 44 articles met the inclusion criteria. A total of 507 patients with cutaneous manifestations were summarized, and 96.25% patients were from Europe. The average age of the patients was 49.03 (range: 5-91) with a female ratio of 60.44%. The skin lesions were polymorphic, and erythema, chilblain-like and urticarial lesions were most common, occurring on an average of 9.92 days (range: 1-30) after the onset of systemic symptoms. The receptor of SARS-CoV-2, ACE2, was found to be expressed on skin, mainly on keratinocytes. Our review systematically presented the clinical characteristics of 507 patients and showed that skin might be the potential target of the infection according to ACE2 expression. More work should be done to better understand the underlying pathogenesis.© 2020 European Academy of Dermatology and Venereology.

**B. Original Research**

1. **Cutaneous Manifestations Related to COVID-19 Immune Dysregulation in the Pediatric Age Group**  
   Larenas-Linnemann D. et al Current Allergy & Asthma Reports 2021;21(2):13.

PURPOSE OF REVIEW: At the juncture of the COVID-19 pandemic, the world is currently in an early phase of collecting clinical data and reports of its skin manifestations, and its pathophysiology is still highly conjectural. We reviewed cutaneous manifestations associated with COVID-19 in the pediatric age group. RECENT FINDINGS: Children infected by SARS-CoV-2 usually develop milder respiratory symptoms, but cutaneous manifestations seem a little more prevalent than in adults. These skin features of infection by the coronavirus can be similar to those produced by other common viruses, but there are also reports of cases with more heterogeneous clinical pictures, which have made their classification difficult. To date, the more frequently reported skin variants featured in pediatric cases are purpuric (pseudo-chilblain, necrotic-acral ischemia, hemorrhagic macules, and/or cutaneous necrosis), morbilliform/maculopapular, erythema multiforme, urticarial, vesicular, Kawasaki-like, and miscellaneous (highly variable in both frequency and severity). Their pathophysiological mechanism is still elusive and is likely to be the result of the complex involvement of one or more mechanisms, like direct virus-induced skin damage, vasculitis-like reactions, and/or indirect injury as a consequence of a systemic inflammatory reaction. In this review, we presented and discussed clinical cases as examples of different cutaneous responses reported in some children with SARS-CoV-2 infection, differential diagnosis considerations, and a preliminary conceptual approach to some of their probable associated pathologic mechanisms.

[https://4223623.odslr.com/resolver/full?sid=OVID:medline&id=pmid:33630167&id=doi:10.1007%2Fs11882-020-00986-6&issn=1529-7322&isbn=&volume=21&issue=2&spage=13&pages=13&date=2021&title=Current+Allergy+%26+Asthma+Reports&atitle=Cutaneous+Manifestations+Related+to+COVID-19+Immune+Dysregulation+in+the+Pediatric+Age+Group.&aulast=Larenas-Linnemann&pid=%3Cauthor%3ELarenas-Linnemann+D%3BLuna-Pech+J%3BNavarrete-Rodriguez+EM%3BRodriguez-Perez+N%3BArias-Cruz+A%3BBlandon-Vijil+MV%3BDel+Rio-Navarro+BE%3BEstrada-Cardona+A%3BOnuma-Takane+E%3BPozo-Beltran+CF%3BValencia-Herrera+AM%3BOrtiz-Aldana+FI%3BToledo-Bahena+ME%3C%2Fauthor%3E%3CAN%3E33630167%3C%2FAN%3E%3CDT%3EJournal+Article%3C%2FDT%3E this link](https://www.knowledgeshare.nhs.uk/index.php?PageID=link_resolver&link=a189bd33e78202355b84548424af868c)

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1. **Facial Pressure Injuries from Prone Positioning in the COVID-19 Era.**  
   Shearer S.C. et al Laryngoscope 2021;:No page numbers.

OBJECTIVE/HYPOTHESIS: This study aimed to determine the incidence of facial pressure injuries associated with prone positioning for COVID-19 patients as well as to characterize the location of injuries and treatments provided. METHODS: This was a retrospective chart review of 263 COVID-19 positive patients requiring intubation in the intensive care units at MedStar Georgetown University Hospital and MedStar Washington Hospital Center between March 1st and July 26th, 2020. Information regarding proning status, duration of proning, presence, or absence of facial pressure injuries and interventions were collected. Paired two-tailed t-test was used to evaluate differences between proned patients who developed pressure injuries with those who did not. RESULTS: Overall, 143 COVID-19 positive patients required proning while intubated with the average duration of proning being 5.15 days. Of those proned, 68 (47.6%) developed a facial pressure injury. The most common site involved was the cheek with a total of 57 (84%) followed by ears (50%). The average duration of proning for patients who developed a pressure injury was significantly longer when compared to those who did not develop pressure injuries (6.79 days vs. 3.64 days, P Copyright © 2021 The American Laryngological, Rhinological and Otological Society, Inc.

[https://4223623.odslr.com/resolver/full?sid=OVID:medline&id=pmid:33389768&id=doi:10.1002%2Flary.29374&issn=0023-852X&isbn=&volume=&issue=&spage=&pages=&date=2021&title=Laryngoscope&atitle=Facial+Pressure+Injuries+from+Prone+Positioning+in+the+COVID-19+Era.&aulast=Shearer&pid=%3Cauthor%3EShearer+SC%3BParsa+KM%3BNewark+A%3BPeesay+T%3BWalsh+AR%3BFernandez+S%3BGao+WZ%3BPierce+ML%3C%2Fauthor%3E%3CAN%3E33389768%3C%2FAN%3E%3CDT%3EJournal+Article%3C%2FDT%3E this link](https://www.knowledgeshare.nhs.uk/index.php?PageID=link_resolver&link=48ccda1fc221e474cd7a948386505a86)

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1. **Skin Manifestations Associated with COVID-19: Current Knowledge and Future Perspectives**  
   Genovese G. et al Dermatology (Basel, Switzerland) 2021;237(1):1-12.

BACKGROUND: Coronavirus disease-19 (COVID-19) is an ongoing global pandemic caused by the "severe acute respiratory syndrome coronavirus 2" (SARS-CoV-2), which was isolated for the first time in Wuhan (China) in December 2019. Common symptoms include fever, cough, fatigue, dyspnea and hypogeusia/hyposmia. Among extrapulmonary signs associated with COVID-19, dermatological manifestations have been increasingly reported in the last few months. SUMMARY: The polymorphic nature of COVID-19-associated cutaneous manifestations led our group to propose a classification, which distinguishes the following six main clinical patterns: (i) urticarial rash, (ii) confluent erythematous/maculopapular/morbilliform rash, (iii) papulovesicular exanthem, (iv) chilblain-like acral pattern, (v) livedo reticularis/racemosa-like pattern, (vi) purpuric "vasculitic" pattern. This review summarizes the current knowledge on COVID-19-associated cutaneous manifestations, focusing on clinical features and therapeutic management of each category and attempting to give an overview of the hypothesized pathophysiological mechanisms of these conditions.

[Available online at this link](https://www.knowledgeshare.nhs.uk/index.php?PageID=link_resolver&link=0bf1999e4e06ef0cfcc0e9e1b07d43b0)

1. **The Face of COVID-19: Facial Pressure Wounds Related to Prone Positioning in Patients Undergoing Ventilation in the Intensive Care Unit.**  
   Jiang S.T. et al Otolaryngology - Head & Neck Surgery 2021;164(2):300-301.

In the setting of COVID-19 (coronavirus disease 2019)-associated moderate and severe acute respiratory distress, persistently hypoxemic patients often require prone positioning for >16 hours. We report facial pressure wounds and ear necrosis as a consequence of prone positioning in patients undergoing ventilation in the intensive care unit in a tertiary medical center in New York City.

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1. **Classification of the cutaneous manifestations of COVID-19: a rapid prospective nationwide consensus study in Spain with 375 cases**  
   Cristina Galván Casas et al British Journal of Dermatology 2020;183(1):71-77.

Summary Background The cutaneous manifestations of COVID-19 disease are poorly characterized. Objectives To describe the cutaneous manifestations of COVID-19 disease and to relate them to other clinical findings. Methods We carried out a nationwide case collection survey of images and clinical data. Using a consensus we described five clinical patterns. We later described the association of these patterns with patient demographics, the timing in relation to symptoms of the disease, the severity and the prognosis. Results The lesions may be classified as acral areas of erythema with vesicles or pustules (pseudo-chilblain) (19%), other vesicular eruptions (9%), urticarial lesions (19%), maculopapular eruptions (47%) and livedo or necrosis (6%). Vesicular eruptions appear early in the course of the disease (15% before other symptoms). The pseudo-chilblain pattern frequently appears late in the evolution of the COVID-19 disease (59% after other symptoms), while the rest tend to appear with other symptoms of COVID-19. The severity of COVID-19 shows a gradient from less severe disease in acral lesions to more severe in the latter groups. The results are similar for confirmed and suspected cases, in terms of both clinical and epidemiological findings. Alternative diagnoses are discussed but seem unlikely for the most specific patterns (pseudo-chilblain and vesicular). Conclusions We provide a description of the cutaneous manifestations associated with COVID-19 infection. These may help clinicians approach patients with the disease and recognize cases presenting with few symptoms. What is already known about this topic? Previous descriptions of cutaneous manifestations of COVID-19 were case reports and mostly lacked illustrations. What does this study add? We describe a large, representative sample of patients with unexplained skin manifestations and a diagnosis of COVID-19, using a consensus method to define morphological patterns associated with COVID-19. We describe five clinical patterns associated with different patient demographics, timing and prognosis, and provide illustrations of these patterns to allow for easy recognition. Linked Editorial: Hay et al. Br J Dermatol 2020; 183:3?4.

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1. **COVID-19 and dermatology**  
   Gul U. Turkish Journal of Medical Sciences 2020;50(8):1751-1759.

Background/aim: Sars-CoV-2 virus infection (COVID-19) was observed in China in the last months of 2019. In the period following, this infection spread all over the world. In March 2020 the World Health Organization announced the existence of a pandemic. The aim of this manuscript is to investigate skin diseases associated with COVID-19 under three main headings: skin problems related to personal protective equipment and personal hygiene measures, skin findings observed in SARS-CoV-2 virus infections, and skin findings due to COVID-19 treatment agents. Materials and methods: In PubMed, Google Scholar databases, skin lesions related to personal protective equipment and personal hygiene measures, skin findings observed in SARS-CoV-2 virus infections and skin findings due to COVID-19 treatment agents subjects are searched in detail. Results: Pressure injury, contact dermatitis, itching, pressure urticaria, exacerbation of preexisting skin diseases, and new skin lesion occurrence/new skin disease occurrence may be due to personal protective equipment. Skin problems related to personal hygiene measures could include itching, dryness, and contact dermatitis. Skin findings may also be observed in SARS-CoV-2 virus infections. The incidence of skin lesions due to COVID-19 was reported to be between 0.2% and 29%. Many skin lesions including maculopapular, urticarial, vesicular, chilblain-like, thrombotic/ischemic, etc. are observed in COVID-19 patients. Some authors have stated that there is an absence of SARS-CoV-2 virus infection-specific skin findings. However, in asymptomatic or presymptomatic COVID-19 patients in particular, skin lesions can lead to the diagnosis of COVID-19. In addition, skin lesions may occur due to COVID-19 treatment agents. Conclusion: Many skin lesions may appear as a result of COVID-19. Even in the absence of a COVID-19 diagnosis, skin findings should be evaluated carefully in this pandemic period. Copyright This work is licensed under a Creative Commons Attribution 4.0 International License.

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1. **Covid-19 pandemic and the skin**  
   Kossara Drenovska International journal of dermatology 2020;59(11):No page numbers.

Covid-19 pandemic and the skin. In the beginning of the COVID-19 outbreak, skin manifestations, if present, were not paid enough attention. Then, the focus moved toward the impact of the prolonged use of personal protective measures in both healthcare workers and patients. In the meantime, attention is increasingly paid to dermatology as a result of the concern for certain groups of dermatologic patients, including those whose condition may worsen by the thorough disinfection measures and those treated with immunosuppressants or immunomodulators. Following patients with psoriasis on biological therapy, as well as other inflammatory and autoimmune cutaneous disorders such as atopic dermatitis, pemphigus, pemphigoid diseases, and skin cancer provoked the interest of dermatologists. Finally, an intriguing question to the dermatologic society was whether skin changes during COVID-19 infection exist and what could be their diagnostic or prognostic value. Here, we summarize skin conditions during the COVID-19 pandemic, patient information, and expert recommendations and give an overview about the registries launched to document skin changes during COVID-19, as well as details about certain patient groups infected with SARS-CoV-2, for example, psoriasis, atopic dermatitis, and autoimmune bullous diseases.© 2020 the International Society of Dermatology.

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1. **COVID-19 pandemic and the skin: what should dermatologists know?.**  
   Darlenski R. et al Clinics in dermatology 2020;38(6):785-787.

The world has changed dramatically since the COVID-19 pandemic began. In addition to our social, occupational, and personal lives, the new coronavirus also poses novel challenges for all physicians, including dermatologists. Several skin conditions have emerged, mainly as a result of prolonged contact with personal protective equipment and excessive personal hygiene. Pressure injury, contact dermatitis, itch, pressure urticaria, and exacerbation of preexisting skin diseases, including seborrheic dermatitis and acne, have been described. We have focused on the dermatologic aspects of the COVID-19 infection so that dermatologists are aware of the skin complications and preventive measures can be taken in the COVID-19 pandemic. Copyright © 2020. Published by Elsevier Inc.

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1. **COVID-19 skin damage challenges: a brief review**  
   Downie Wounds UK 2020;16(4):48-51.

The COVID-19 pandemic has highlighted areas of skin damage that have previously been written about in the tissue viability literature, but are not necessarily seen as mainstream topics. This article will discuss some of these topics, to include: personal protective equipment (PPE) skin damage to healthcare staff; vasopressor therapy skin damage; and acro-ischaemia or ‘Covid toes’. Prevention strategies for PPE related skin damage will be briefly discussed. Plus look at how vasopressor skin damage can be mistaken for a deep tissue injury (DTI), and cover what to look for to differentiate between the two. Finishing with how acro-ischaemia may also be mistakenly categorised as a DTI.

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1. **Cutaneous involvement during COVID-19 pandemic: an emerging sign of infection**  
   M C. Annunziata et al Journal of the European Academy of Dermatology and Venereology 2020;34(11):No page numbers.

Cutaneous involvement during COVID-19 pandemic: an emerging sign of infection. Since December 2019, SARS-CoV-2 epidemic has spread all over the world.1 To date, few reports regarding the cutaneous involvement in COVID-19 have been published.2,3 Herein, we report a four cases series describing skin lesions probably related with COVID-19. The case 1 was a 66-year-old Caucasian female with a history of hypertension and dyslipidaemia. When hospitalized, she showed fever, nasal congestion and pneumonia symptoms. A chest-TC displayed bilateral interstitial lungs' involvement and a nasopharyngeal-swab confirmed SARS-CoV-2 infection. At day 6 of hospitalization, an asymptomatic erythematous-pomphoid skin rash occurred on the trunk (Figure 1A).This article is protected by copyright. All rights reserved.

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1. **Cutaneous Manifestations in Adult Patients with COVID-19 and Dermatologic Conditions Related to the COVID-19 Pandemic in Health Care Workers**  
   Mawhirt S.L. et al Current Allergy & Asthma Reports 2020;20(12):75.

PURPOSE OF REVIEW: COVID-19 (coronavirus viral disease 2019), due to the novel SARS-CoV-2, may present with different types of cutaneous manifestations of varying pathophysiology. During the ongoing pandemic, publications reporting dermatologic findings in COVID-19 continue to emerge. RECENT FINDINGS: Cutaneous vasculopathy and microthrombus-related changes including acral and sacral lesions, retiform purpura, livedo reticularis, and cutaneous vasculitis are notable findings in adult patients. Other exanthems include urticaria or angioedema, morbilliform/maculopapular exanthems, erythema multiforme, and vesicular eruptions. Increased recognition of these findings, especially those consistent with cutaneous microthrombi or vasculitis, is of particular importance. Additionally, occupational dermatologic disease related to extended personal protective equipment (PPE) use, such as skin damage and irritant or allergic contact dermatitis (ACD), represents another emerging problem amidst the pandemic. In this review, we highlight the various cutaneous manifestations associated with COVID-19 in adult patients and occupational dermatitis in health care workers (HCWs) caring for this patient population.

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1. **Cutaneous manifestations in patients with COVID-19: a preliminary review of an emerging issue**  
   A V. Marzano et al British Journal of Dermatology 2020;183(3):431-442.

Cutaneous manifestations in patients with COVID-19: a preliminary review of an emerging issue. The infection caused by the recently identified SARS-CoV-2, called coronavirus disease-19 (COVID-19), has rapidly spread throughout the world. With the exponential increase of patients worldwide, the clinical spectrum of COVID-19 is being better defined and new symptoms are emerging. Numerous reports are documenting the occurrence of different cutaneous manifestations in patients with COVID-19.To provide a brief overview of cutaneous lesions associated with COVID-19.A literature search was performed in the PubMed, Scopus and Web of Science databases up to 30 April 2020. This narrative review summarizes the available data regarding the clinical and histological features of COVID-19-associated skin manifestations.The literature reports showed a great heterogeneity in COVID-19-associated cutaneous manifestations, as well as in their latency periods and associated extracutaneous symptoms. Pathogenic mechanisms are unknown, although the roles of a hyperactive immune response, complement activation and microvascular injury have been hypothesized. Based on our experience and the literature data, we subdivided the reported cutaneous lesions into six main clinical patterns: (i) urticarial rash; (ii) confluent erythematous-maculopapular-morbilliform rash; (iii) papulovesicular exanthem; (iv) chilblain-like acral pattern; (v) livedo reticularis-livedo racemosa-like pattern; and (vi) purpuric 'vasculitic' pattern. These six patterns can be merged into two main groups: the first - inflammatory and exanthematous - includes the first three groups listed above, and the second includes the vasculopathic and vasculitic lesions of the last three groups.The possible presence of cutaneous findings leading to suspect COVID-19 puts dermatologists in a relevant position. Further studies are needed to delineate the diagnostic and prognostic values of such cutaneous manifestations.© 2020 British Association of Dermatologists.

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1. **Cutaneous manifestations of COVID-19: A review of the published literature**  
   Ömer Faruk Elmas et al Dermatologic Therapy 2020;33(4):No page numbers-e13696.

Abstract COVID-19 is a highly contagious respiratory tract infection caused by severe acute respiratory syndrome coronavirus 2. COVID-19 outbreak, which caused thousands of deaths, has been declared a pandemic by the World Health Organization in March 2020. The infection has been reported to demonstrate different types of cutaneous manifestations including urticarial, maculopapular, papulovesicular, purpuric, livedoid, and thrombotic-ischemic lesions. Given the high mortality rate of the infection, timely and accurate identification of relevant cutaneous manifestations may play a key role in the early diagnosis and management. In this study, we provide a review with a focus on the reported cutaneous manifestations of COVID-19.

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1. **Cutaneous Manifestations of COVID-19: An Evidence-Based Review**  
   Giulia Daneshgaran et al American journal of clinical dermatology 2020;21(5):627-639.

Cutaneous Manifestations of COVID-19: An Evidence-Based Review. The coronavirus disease 2019 (COVID-19) pandemic has affected 18 million people and killed over 690,000 patients. Although this virus primarily causes respiratory symptoms, an increasing number of cutaneous manifestations associated with this disease have been reported.The aim of this review was to collate and categorize the dermatologic findings reported in patients with COVID-19 and identify specific lesions that may facilitate diagnosis and prognostication.An evidence-based review of the PubMed database was conducted on 14 May, 2020 using the search terms "Covid-19 skin," "Covid-19 rash," "Covid-19 exanthem," and "Covid-19 chilblains." Peer-reviewed publications containing original COVID-19 patient cases and a discussion of the associated cutaneous findings were included in the analysis.The literature search identified 115 records, of which 34 publications describing 996 patients with dermatologic conditions were included. Case reports (n = 15), case series (n = 13), and observational prospective studies (n = 4) were the most common publication types. Acral lesions resembling pseudo-chilblains were the most frequent lesion identified (40.4% of cases), appearing in young adults (mean age, 23.2 years) after the onset of extracutaneous COVID-19 symptoms (55/100 patients). Erythematous maculopapular rashes affected 21.3% of patients, most frequently impacting middle-aged adults (mean age, 53.2 years) and occurring at the same time as non-cutaneous symptoms (110/187 patients). Vesicular rashes affected 13.0% of patients, appearing in middle-aged adults (mean age, 48.3 years) after the onset of other symptoms (52/84 patients). Urticarial rashes affected 10.9% of patients, appearing in adults (mean age, 38.3 years) and occurring at the same time as non-cutaneous symptoms (46/78 patients). Vascular rashes resembling livedo or purpura were uncommon (4% of cases), appearing in elderly patients (mean age, 77.5 years) and occurring at the same time as non-cutaneous COVID-19 symptoms (18/29 patients). Erythema multiforme-like eruptions, although infrequent (3.7% of cases), affected mostly children (mean age, 12.2 years).Vesicular rashes may suggest an initial diagnosis of COVID-19, acral lesions may be most appropriate for epidemiological uses, and vascular rashes may be a useful prognostic marker for severe disease. As a potential correlate to disease severity, prognosis, or infectibility, it is critical that all healthcare professionals be well versed in these increasingly common cutaneous manifestations of COVID-19.

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1. **Cutaneous manifestations of COVID-19: Report of three cases and a review of literature**  
   Muskaan Sachdeva et al Journal of dermatological science 2020;98(2):75-81.

Cutaneous manifestations of COVID-19: Report of three cases and a review of literature. Various cutaneous manifestations have been observed in patients with COVID-19 infection. However, overall similarities in the clinical presentation of these dermatological manifestations have not yet been summarized.This review aims to provide an overview of various cutaneous manifestations in patients with COVID-19 through three case reports and a literature review.A literature search was conducted using PubMed, OVID, and Google search engines for original and review articles. Studies written in the English language that mentioned cutaneous symptoms and COVID-19 were included.Eighteen articles and three additional cases reported in this paper were included in this review. Of these studies, 6 are case series and 12 are case report studies. The most common cutaneous manifestation of COVID-19 was found to be maculopapular exanthem (morbilliform), presenting in 36.1% (26/72) patients. The other cutaneous manifestations included: a papulovesicular rash (34.7%, 25/72), urticaria (9.7%, 7/72), painful acral red purple papules (15.3%, 11/72) of patients, livedo reticularis lesions (2.8%, 2/72) and petechiae (1.4%, 1/72). Majority of lesions were localized on the trunk (66.7%, 50/72), however, 19.4% (14/72) of patients experienced cutaneous manifestations in the hands and feet. Skin lesion development occurred before the onset of respiratory symptoms or COVID-19 diagnosis in 12.5% (9/72) of the patients, and lesions spontaneously healed in all patients within 10 days. Majority of the studies reported no correlation between COVID-19 severity and skin lesions.Infection with COVID-19 may result in dermatological manifestations with various clinical presentations, which may aid in the timely diagnosis of this infection.Copyright © 2020 Japanese Society for Investigative Dermatology. Published by Elsevier B.V. All rights reserved.

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1. **Cutaneous manifestations of SARS-CoV-2 infection: a clinical update**  
   P Gisondi et al Journal of the European Academy of Dermatology and Venereology 2020;34(11):No page numbers.

Cutaneous manifestations of SARS-CoV-2 infection: a clinical update. On 11 March 2020, the World Health Organization (WHO) has declared the novel coronavirus disease (COVID-19) a global pandemic, caused by the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2 virus). A consistent number of case reports and clinical series have been already published describing a complex spectrum of skin manifestations associated with the SARS-CoV-2 infection. We carried out a review of the English-language literature up to 20 May 2020, reporting original cases or case series of the cutaneous manifestations of SARS-CoV-2 virus infection. The following databases were consulted: PubMed, Embase, Google Scholar and ResearchGate. The search of papers was conducted by using the key term 'COVID-19' or 'SARS-CoV-2' or 'coronavirus' combined with each of the following: 'skin', 'cutaneous', 'dermatologic' or 'dermatology', 'manifestation', 'lesions', or 'rash'. The patterns of dermatological manifestations associated with SARS-CoV-2 infection could be classified into four categories: exanthema (varicella-like, papulo-vesicular and morbilliform rash), vascular (chilblain-like, purpuric/petechial and livedoid lesions), urticarial and acro-papular eruption. Lastly, other skin manifestations to be considered are the cutaneous adverse reactions to the drugs prescribed for the treatment of COVID-19. Whether SARS-CoV-2 infection can directly cause a worsening of chronic inflammatory diseases such as psoriasis or atopic dermatitis remains to be determined. Dermatology's outlook in the COVID-19 pandemic is multidimensional.© 2020 European Academy of Dermatology and Venereology.

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1. **Cutaneous signs in COVID-19 patients: A review**  
   Uwe Wollina et al Dermatologic Therapy 2020;33(5):No page numbers-e13549.

Abstract Coronavirus disease (COVID-19) pandemic caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) primarily affects the epithelium of the airways. With the increasing involvement of dermatologist in management of this crisis, cutaneous symptoms gained more and more attention. In this review, we will describe cutaneous symptoms of patients of all ages in association with COVID-19. We will focus on such disorders that are caused by direct action of SARS-CoV-2 on tissues, complement, and coagulation system and on nonspecific eruption of the systemic viral infection. Drug-induced reactions are only mentioned in the differential diagnoses. Although more systematic investigations are warranted, it becomes clear that some symptoms are clinical signs of a milder COVID-19 course, while others are a red flag for a more severe course. Knowledge of the cutaneous manifestations of COVID-19 may help in early diagnosis, triage of patients, and risk stratification.

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1. **Cutaneous Symptoms of Patients Diagnosed with Covid-19 in One Province: A Cross-Sectional Survey**  
   E Öksüm Solak et al Journal of the European Academy of Dermatology and Venereology 2020;35(2):No page numbers.

Cutaneous Symptoms of Patients Diagnosed with Covid-19 in One Province: A Cross-Sectional Survey. The COVID-19 infection, which emerged in December 2019 in China and has spread all over the world,1 continues to be a serious health problem and many dermatological findings have been reported.2-6 This study patients who had at least one positive COVID-19-PCR sample in Kayseri province and were followed up and treated for COVID-19 were contacted via the Internet and telephone. Hence, patients who might have been misdiagnosed were excluded. This way, data of a more specific patient group could be evaluated.This article is protected by copyright. All rights reserved.

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1. **Dermatologic manifestations and complications of COVID-19**  
   Michael Gottlieb et al American Journal of Emergency Medicine 2020;38(9):1715-1721.

Dermatologic manifestations and complications of COVID-19. The novel coronavirus disease of 2019 (COVID-19) is associated with significant morbidity and mortality. While much of the focus has been on the cardiac and pulmonary complications, there are several important dermatologic components that clinicians must be aware of.This brief report summarizes the dermatologic manifestations and complications associated with COVID-19 with an emphasis on Emergency Medicine clinicians.Dermatologic manifestations of COVID-19 are increasingly recognized within the literature. The primary etiologies include vasculitis versus direct viral involvement. There are several types of skin findings described in association with COVID-19. These include maculopapular rashes, urticaria, vesicles, petechiae, purpura, chilblains, livedo racemosa, and distal limb ischemia. While most of these dermatologic findings are self-resolving, they can help increase one's suspicion for COVID-19.It is important to be aware of the dermatologic manifestations and complications of COVID-19. Knowledge of the components is important to help identify potential COVID-19 patients and properly treat complications.Copyright © 2020 Elsevier Inc. All rights reserved.

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1. **Dermatological aspects of SARS-CoV-2 infection: mechanisms and manifestations**  
   Garduño-Soto M. et al Archives of Dermatological Research 2020;:No page numbers.

The human infection caused by the novel SARS-CoV-2 is a public health emergency of international concern. Although the disease associated to this virus, named COVID-19, mainly affects the lungs, the infection can spread to extrapulmonary tissues, causing multiorgan involvement in severely ill patients. The broad infective capacity of SARS-CoV-2 is related to the pattern of expression of the viral entry factors ACE2 and TMPRSS2 in human tissues. As such, the respiratory and gastrointestinal tracts are at high risk for SARS-CoV-2 infection due to their high expression of ACE2 and TMPRSS2, which explains the clinical phenotype described in the vast majority of infected patients that includes pneumonia and diarrhea. Recently, preoccupation about the potential of the virus to infect the skin has been raised by dermatologists due to the increasing observations of cutaneous manifestations in patients with SARS-CoV-2 infection. Although there is little evidence of the expression of ACE2 and TMPRSS2 in the normal skin, the dermatological findings observed among COVID-19 patients warrants further investigation to delineate the mechanisms of skin affection after SARS-CoV-2 infection. Here, we provide a summary of the dermatological findings observed among patients with laboratory-confirmed SARS-CoV-2 infection based on recent reports. In addition, we analyze possible mechanisms of skin injury in COVID-19 patients and discuss about the risk of individuals with chronic skin conditions for SARS-CoV-2 infection. The present review constitutes a useful informative tool to improve our understanding of the pathophysiological mechanisms of COVID-19 and the possible implications of the current pandemic in dermatology.

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1. **Facial pressure ulcers in COVID-19 patients undergoing prone positioning: How to prevent an underestimated epidemic?**  
   Perrillat A. Journal of stomatology, oral and maxillofacial surgery 2020;121(4):442-444.

Prone positioning is an adjuvant therapy used to treat COVID-19 pneumonia complicated by acute respiratory distress syndrome. However, prolonged pressure on facial skin at the level of the bony structures may be responsible for facial pressure ulcers. In the context of severe COVID-19 pneumonia, we hypothesized that hypoxemia, microvascular injury and thrombosis can increase the risk of pressure ulcers. We described two cases in order to emphasize the risk of facial pressure ulcers as a result of prone positioning, so as to discuss their physiopathology and highlight the importance of appropriate preventive measures. Copyright © 2020 Elsevier Masson SAS. All rights reserved.

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1. **Initial observation on pressure ulcers and COVID-19**  
   PERCY Wounds UK 2020;16(4):45-47.

Since the beginning of 2020, the COVID-19 pandemic has been a challenge faced by the world and one that all health professionals are facing. The impact of COVID-19 on patients receiving and accepting healthcare services have changed in the past few months. One of the main issues identified in NHS hospitals were increase in the pressure ulcers and this paper is an initial glance at what was identified at an acute setting during the first wave of pandemic.

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1. **Learning from COVID-19: developing a more efficient tissue viability service**  
   Fletcher Wounds UK 2020;16(3):77-81.

Coronavirus disease (COVID-19) is an infectious disease caused by a newly discovered coronavirus (World Health Organization [WHO], 2020). A pandemic has been declared by the World Health Organization, which is defined as ‘an epidemic that is spread over several countries or continents and affects.

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1. **Medical device related pressure ulcer of the lip in a patient with COVID-19: Case report and review of the literature**  
   Siotos C. et al Journal of stomatology, oral and maxillofacial surgery 2020;:No page numbers.

Pressure ulcers of the lip constitute a rare entity faced by plastic surgeons and there is a relatively paucity of data regarding optimal management. In this study we present one case of upper lip pressure ulcer related to prone intubation for respiratory distress due to SARS-CoV-2 infection, treated with surgical excision and reconstruction. We also performed a review of the literature to identify other studies on pressure lip ulcers. Six studies were considered relevant. Conservative management constitutes the most common method of treatment; however, little is known about the aesthetic, and functional morbidity related to either surgical or non-surgical treatments. Copyright © 2020 Elsevier Masson SAS. All rights reserved.

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1. **Medical Device-Related Pressure Injuries During the COVID-19 Pandemic.**  
   Martel T. et al Journal of Wound, Ostomy, & Continence Nursing 2020;47(5):430-434.

BACKGROUND: Medical device-related pressure injuries (MDRPIs) account for more than 30% of all hospital-acquired pressure injuries. The COVID-19 pandemic introduced a large population of patients at risk for MDRPIs due to prolonged intubation and prone positioning. We reviewed our experience with MDRPIs during the 2020 COVID-19 pandemic at an Academic Medical Center. CASES: We evaluated 30 cases of MDRPIs acquired during the peak of our pandemic, April 1 to May 31, 2020, and compared these to injuries seen over a similar time period prior to the pandemic. CONCLUSIONS: Our experiences with MDRPIs during this time has led the WOC team to begin development of a quality improvement project aimed at improving management of high-risk respiratory illness patients requiring intubation and prone positioning.

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1. **National Wound Care Strategy Programme: looking at the impact of COVID-19**  
   Adderley Wounds UK 2020;16(2):11.

In these ‘interesting’ times, although the focus should be on the needs of those with COVID-19 and preventing its spread, wound care must not be forgotten. Inadequate wound care leads to increased patient suffering, use of healthcare resources, hospital admissions and mortality, adding to the pressure on our already stretched healthcare services. In ‘normal’ times, wound care forms around 50% of community nursing work, mostly foot and leg ulcers, but worrying reports have emerged of the impact of the COVID-19 situation on wound care.

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1. **Perioral pressure ulcers in patients with COVID-19 requiring invasive mechanical ventilation.**  
   Sleiwah A. et al European Journal of Plastic Surgery 2020;43(6):No page numbers.

Background: Facial pressure ulcers are a rare yet significant complication. National Institute for Health and Care Excellence (NICE) guidelines recommend that patients should be risk-assessed for pressure ulcers and measures instated to prevent such complication. In this study, we report case series of perioral pressure ulcers developed following the use of two devices to secure endotracheal tubes in COVID-19 positive patients managed in the intensive care setting. Methods: A retrospective analysis was conducted on sixteen patients identified to have perioral pressure ulcers by using the institutional risk management system. Data parameters included patient demographics (age, gender, comorbidities, smoking history and body mass index (BMI)). Data collection included the indication of admission to ITU, duration of intubation, types of medical devices utilised to secure the endotracheal tube, requirement of vasopressor agents and renal replacement therapy, presence of other associated ulcers, duration of proning and mortality. Results: Sixteen patients developed different patterns of perioral pressure ulcers related to the use of two medical devices (Insight, AnchorFast). The mean age was 58.6 years. The average length of intubation was 18.8 days. Fourteen patients required proning, with an average duration of 5.2 days. Conclusions: The two devices utilised to secure endotracheal tubes are associated with unique patterns of facial pressure ulcers. Measures should be taken to assess the skin regularly and avoid utilising devices that are associated with a high risk of facial pressure ulcers. Awareness and training should be provided to prevent such significant complication.Level of evidence: Level IV, risk/prognostic study. Copyright © Springer-Verlag GmbH Germany, part of Springer Nature 2020.

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1. **Pernio-like skin lesions associated with COVID-19: A case series of 318 patients from 8 countries**  
   Esther E. Freeman et al Journal of American Academy of Dermatology 2020;83(2):486-492.

Pernio-like skin lesions associated with COVID-19: A case series of 318 patients from 8 countries. Increasing evidence suggests pernio-like lesions are cutaneous manifestations of coronavirus infectious disease 2019 (COVID-19).To describe clinical and pathologic findings of pernio-like lesions in patients with confirmed or suspected COVID-19.An international dermatology registry was circulated to health care providers worldwide through the American Academy of Dermatology, International League of Dermatologic Societies, and other organizations.We documented 505 patients with dermatologic manifestations associated with COVID-19, including 318 (63%) with pernio-like lesions. Patients with pernio-like lesions were generally young and healthy, with relatively mild COVID-19. Of 318 patients with confirmed or suspected COVID-19 by providers, 23 (7%) were laboratory-confirmed COVID-19 positive, and 20 others (6%) were close contacts of patients with confirmed COVID-19. Given current testing criteria, many patients lacked COVID-19 testing access. For 55% of patients, pernio-like lesions were their only symptom. In patients with other COVID-19 symptoms, pernio-like lesions typically appeared after other symptoms. Pernio-like lesions lasted a median of 14 days (interquartile range, 10-21 days).A case series cannot estimate population-level incidence or prevalence. In addition, there may be confirmation bias in reporting. We cannot exclude an epiphenomenon.Pernio-like skin changes of the feet and hands, without another explanation, may suggest COVID-19 infection and should prompt confirmatory testing.Copyright © 2020 American Academy of Dermatology, Inc. Published by Elsevier Inc. All rights reserved.

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1. **Skin manifestations in patients hospitalized with confirmed COVID-19 disease: a cross-sectional study in a tertiary hospital**  
   Irune M.éndez Maestro et al International journal of dermatology 2020;59(11):No page numbers.

Skin manifestations in patients hospitalized with confirmed COVID-19 disease: a cross-sectional study in a tertiary hospital. COVID-19 cutaneous manifestations have been recently described and classified in five different clinical patterns, including acral erythema-edema (pseudo-chilblain), maculopapular exanthemas, vesicular eruptions, urticarial lesions, and livedo or necrosis.The objective of this study was to examine the skin of hospitalized patients with a confirmed diagnosis of COVID-19 disease and describe the real prevalence of skin manifestations.A cross-sectional study, which included hospitalized patients in Cruces University Hospital from April 14-30, 2020, with a laboratory-confirmed diagnosis of COVID-19 (with polymerase chain reaction and/or serology tests), was conducted. Entire body surface examination was performed by experienced dermatologists to search for cutaneous manifestations related to COVID-19 disease.From a sample of 75 patients, 14 (18.7%) developed cutaneous manifestations possibly related to COVID-19. We found six patients with acral erythema-edema (pseudo-chilblain) (42.8%), four patients with maculopapular exanthemas (28.6%), two patients with urticarial lesions (14.3%), one patient with livedo reticularis-like lesions (7.15%), and one patient with vesicular eruption (7.15%).Our study provides a more plausible relationship between the main cutaneous patterns and COVID-19 in hospitalized patients as all of them had a confirmatory laboratory test. Skin manifestations are frequent but mild with spontaneous resolution. These findings are nonspecific and can be similar to other viral infections and adverse drug reactions in hospitalized patients.© 2020 the International Society of Dermatology.

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1. **Skin manifestations with COVID-19: the purple skin and toes that you are seeing may not be deep tissue pressure injury**  
   Black World Council of Enterostomal Therapists Journal 2020;40(2):18-21.

Many reports are occurring concerning areas of purpuric/purple skin and purple toe lesions in patients diagnosed with COVID-19 (SARS-CoV-2) (Figure 1). Wound care providers are being asked if these skin lesions are forms of Deep Tissue Pressure Injury and/or "skin failure". Early reports of COVID-19 related skin changes included rashes, acral areas of erythema with vesicles or pustules (pseudo-chilblain), other vesicular eruptions, urticarial lesions, maculopapular eruptions, and livedo or necrosis.1-4 The pattern and presentation of skin manifestations with COVID-19 is more than rashes. The purpose of this paper is to guide the wound care clinician in determining if the "purple skin" being seen is a deep tissue pressure injury or a cutaneous manifestation of COVID-19.

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1. **The spectrum of COVID-19-associated dermatologic manifestations: An international registry of 716 patients from 31 countries**  
   Esther E. Freeman et al Journal of American Academy of Dermatology 2020;83(4):1118-1129.

The spectrum of COVID-19-associated dermatologic manifestations: An international registry of 716 patients from 31 countries. Coronavirus disease 2019 (COVID-19) has associated cutaneous manifestations.To characterize the diversity of cutaneous manifestations of COVID-19 and facilitate understanding of the underlying pathophysiology.Case series from an international registry from the American Academy of Dermatology and International League of Dermatological Societies.The registry collected 716 cases of new-onset dermatologic symptoms in patients with confirmed/suspected COVID-19. Of the 171 patients in the registry with laboratory-confirmed COVID-19, the most common morphologies were morbilliform (22%), pernio-like (18%), urticarial (16%), macular erythema (13%), vesicular (11%), papulosquamous (9.9%), and retiform purpura (6.4%). Pernio-like lesions were common in patients with mild disease, whereas retiform purpura presented exclusively in ill, hospitalized patients.We cannot estimate incidence or prevalence. Confirmation bias is possible.This study highlights the array of cutaneous manifestations associated with COVID-19. Many morphologies were nonspecific, whereas others may provide insight into potential immune or inflammatory pathways in COVID-19 pathophysiology.Copyright © 2020 American Academy of Dermatology, Inc. Published by Elsevier Inc. All rights reserved.

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1. **The trend of cutaneous lesions during COVID-19 pandemic: lessons from a meta-analysis and systematic review**  
   Bandhala Rajan M. et al International journal of dermatology 2020;59(11):No page numbers.

The trend of cutaneous lesions during COVID-19 pandemic: lessons from a meta-analysis and systematic review. Besides predominant respiratory and gastrointestinal manifestations, reports on cutaneous manifestations in COVID-19 patients are being noted increasingly.To estimate the prevalence of cutaneous manifestations in COVID-19 patients.This study was performed according to the Preferred Reporting Items for Systematic Reviews and Meta-analysis (PRISMA) guidelines. A detailed literature search was done in PubMed and Embase from December 1, 2019, till May 1, 2020. Studies reporting cutaneous manifestations in COVID-19 patients were included. Irrespective of the heterogeneity of data, a random effects model with inverse-variance approach was used for pooling the prevalence using meta package in R version 3.6.2.Out of 15,143 articles, 2086 articles were selected for full-text read. Forty-three articles were selected for qualitative analysis, of which 10 articles (N = 1682) were included for meta-analysis. The pooled prevalence of overall cutaneous lesions was 5.69 (95% confidence interval CI]: 1.87-15.98; I2 88%). The pooled prevalence of other outcome parameters were as follows: viral exanthem-like presentation 4.15 (95% CI: 1.33-12.23; I2 88%), maculopapular rash 3.81 (95% CI: 1.02-13.18; I2 87%), vesiculobullous lesions 1.67 (95% CI: 0.70-3.96; I2 0%).The estimated prevalence of cutaneous manifestations in COVID-19 was 5.69%. Other manifestations were urticaria, chilblain-like lesions, livedo reticularis, and finger/toe gangrene. Although it is premature to conclude the prevalence of the cutaneous manifestations during this ongoing pandemic, our report may be a stimulating factor for the physicians to perform further vigilant streamlined reporting of cutaneous manifestations in COVID-19 patients to estimate the final prevalence.© 2020 the International Society of Dermatology.

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### Opening Internet Links

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### Full text papers

Links are given to full text resources where available. For some of the papers, you will need an **NHS OpenAthens Account**. If you do not have an account you can [register online](https://openathens.nice.org.uk/).

You can then access the papers by simply entering your username and password. If you do not have easy access to the internet to gain access, please let us know and we can download the papers for you.

### Guidance on searching within online documents

Links are provided to the full text of each document. Relevant extracts have been copied and pasted into these results. Rather than browse through lengthy documents, you can search for specific words as follows:

**Portable Document Format / pdf / Adobe**  
Click on the Search button (illustrated with binoculars). This will open up a search window. Type in the term you need to find and links to all of the references to that term within the document will be displayed in the window. You can jump to each reference by clicking it.

**Word documents**  
Select Edit from the menu, the Find and type in your term in the search box which is presented. The search function will locate the first use of the term in the document. By pressing 'next' you will jump to further references.

## Search History

**Sources searched** include:

Part 1: Trust intranet, Google Advanvced, NICE/SIGN/TRIP (guidelines), Cochrane, Uni of York CRD, Wounds UK

Part 2: MEDLINE, EMBASE, CINAHL

**Date range used** (5 years, 10 years): 2019-  
**Limits used** (gender, article/study type, etc.): English

**Search terms and notes** (full search strategy for database searches below):

|  | **Source** | **Criteria** | **Results** |
| --- | --- | --- | --- |
| 1. | MEDLINE | exp Coronavirus/ | 63357 |
| 2. | MEDLINE | exp Coronavirus Infections/ | 75931 |
| 3. | MEDLINE | ((corona\* or corono\*) adj1 (virus\* or viral\* or virinae\*)).ti,ab,kw,kf. | 3101 |
| 4. | MEDLINE | (coronavirus\* or coronovirus\* or coronavirinae\* or CoV).ti,ab,kw,kf. | 74575 |
| 5. | MEDLINE | ("2019-nCoV\*" or 2019nCoV\* or "19-nCoV\*" or 19nCoV\* or nCoV2019\* or "nCoV-2019\*" or nCoV19\* or "nCoV-19\*" or "COVID-19\*" or COVID19\* or "COVID-2019\*" or COVID2019\* or "HCoV-19\*" or HCoV19\* or "HCoV-2019\*" or HCoV2019\* or "2019 novel\*" or Ncov\* or "n-cov" or "SARS-CoV-2\*" or "SARSCoV-2\*" or "SARSCoV2\*" or "SARS-CoV2\*" or SARSCov19\* or "SARS-Cov19\*" or "SARSCov-19\*" or "SARS-Cov-19\*" or SARSCov2019\* or "SARS-Cov2019\*" or "SARSCov-2019\*" or "SARS-Cov-2019\*" or SARS2\* or "SARS-2\*" or SARScoronavirus2\* or "SARS-coronavirus-2\*" or "SARScoronavirus 2\*" or "SARS coronavirus2\*" or SARScoronovirus2\* or "SARS-coronovirus-2\*" or "SARScoronovirus 2\*" or "SARS coronovirus2\*" or covid).ti,ab,kw,kf. | 109845 |
| 6. | MEDLINE | (respiratory\* adj2 (symptom\* or disease\* or illness\* or condition\*) adj5 (Wuhan\* or Hubei\* or China\* or Chinese\* or Huanan\*)).ti,ab,kw,kf. | 326 |
| 7. | MEDLINE | (("seafood market\*" or "food market\*") adj10 (Wuhan\* or Hubei\* or China\* or Chinese\* or Huanan\*)).ti,ab,kw,kf. | 98 |
| 8. | MEDLINE | (pneumonia\* adj3 (Wuhan\* or Hubei\* or China\* or Chinese\* or Huanan\*)).ti,ab,kw,kf. | 596 |
| 9. | MEDLINE | ((outbreak\* or wildlife\* or pandemic\* or epidemic\*) adj1 (Wuhan\* or Hubei\* or China\* or Chinese\* or Huanan\*)).ti,ab,kw,kf. | 371 |
| 10. | MEDLINE | "severe acute respiratory syndrome\*".ti,ab,kw,kf. | 18564 |
| 11. | MEDLINE | or/1-10 | 137522 |
| 12. | MEDLINE | (skin adj4 injur\*).ti,ab. | 5455 |
| 13. | MEDLINE | (skin adj4 tear\*).ti,ab. | 375 |
| 14. | MEDLINE | (skin adj4 trauma\*).ti,ab. | 1508 |
| 15. | MEDLINE | (skin adj4 wound\*).ti,ab. | 12158 |
| 16. | MEDLINE | (skin adj4 bruis\*).ti,ab. | 326 |
| 17. | MEDLINE | (skin adj4 abrasion\*).ti,ab. | 444 |
| 18. | MEDLINE | (skin adj4 laceration\*).ti,ab. | 278 |
| 19. | MEDLINE | (skin adj4 integrity).ti,ab. | 1588 |
| 20. | MEDLINE | (skin adj4 breakdown).ti,ab. | 973 |
| 21. | MEDLINE | (skin adj4 damage).ti,ab. | 4981 |
| 22. | MEDLINE | exp Lacerations/ | 3433 |
| 23. | MEDLINE | or/12-22 | 29272 |
| 24. | MEDLINE | (pressure adj4 (ulcer\* or sore\* or injur\* or wound\*)).ti,ab. | 17426 |
| 25. | MEDLINE | exp Pressure Ulcer/ | 12524 |
| 26. | MEDLINE | 24 or 25 | 22373 |
| 27. | MEDLINE | 23 or 26 | 50414 |
| 28. | MEDLINE | 11 and 27 | 132 |
| 29. | EMBASE | exp Coronavirinae/ | 23375 |
| 30. | EMBASE | exp Coronavirus infection/ | 24511 |
| 31. | EMBASE | ("coronavirus disease 2019" or "severe acute respiratory syndrome coronavirus 2").sh,dj. | 99645 |
| 32. | EMBASE | ((corona\* or corono\*) adj1 (virus\* or viral\* or virinae\*)).ti,ab,kw. | 2499 |
| 33. | EMBASE | (coronavirus\* or coronovirus\* or coronavirinae\* or CoV).ti,ab,kw. | 74951 |
| 34. | EMBASE | ("2019-nCoV\*" or 2019nCoV\* or "19-nCoV\*" or 19nCoV\* or nCoV2019\* or "nCoV-2019\*" or nCoV19\* or "nCoV-19\*" or "COVID-19\*" or COVID19\* or "COVID-2019\*" or COVID2019\* or "HCoV-19\*" or HCoV19\* or "HCoV-2019\*" or HCoV2019\* or "2019 novel\*" or Ncov\* or "n-cov" or "SARS-CoV-2\*" or "SARSCoV-2\*" or "SARSCoV2\*" or "SARS-CoV2\*" or SARSCov19\* or "SARS-Cov19\*" or "SARSCov-19\*" or "SARS-Cov-19\*" or SARSCov2019\* or "SARS-Cov2019\*" or "SARSCov-2019\*" or "SARS-Cov-2019\*" or SARS2\* or "SARS-2\*" or SARScoronavirus2\* or "SARS-coronavirus-2\*" or "SARScoronavirus 2\*" or "SARS coronavirus2\*" or SARScoronovirus2\* or "SARS-coronovirus-2\*" or "SARScoronovirus 2\*" or "SARS coronovirus2\*" or covid).ti,ab,kw. | 108393 |
| 35. | EMBASE | (respiratory\* adj2 (symptom\* or disease\* or illness\* or condition\*) adj5 (Wuhan\* or Hubei\* or China\* or Chinese\* or Huanan\*)).ti,ab,kw. | 400 |
| 36. | EMBASE | (("seafood market\*" or "food market\*") adj10 (Wuhan\* or Hubei\* or China\* or Chinese\* or Huanan\*)).ti,ab,kw. | 108 |
| 37. | EMBASE | (pneumonia\* adj3 (Wuhan\* or Hubei\* or China\* or Chinese\* or Huanan\*)).ti,ab,kw. | 643 |
| 38. | EMBASE | ((outbreak\* or wildlife\* or pandemic\* or epidemic\*) adj1 (Wuhan\* or Hubei\* or China\* or Chinese\* or Huanan\*)).ti,ab,kw. | 174 |
| 39. | EMBASE | “severe acute respiratory syndrome\*".ti,ab,kw. | 18325 |
| 40. | EMBASE | or/29-39 | 145024 |
| 41. | EMBASE | limit 40 to yr="2019 -Current" | 121625 |
| 42. | EMBASE | limit 41 to medline | 28414 |
| 43. | EMBASE | 41 not 42 | 93211 |
| 44. | EMBASE | (skin adj4 injur\*).ti,ab. | 7037 |
| 45. | EMBASE | (skin adj4 tear\*).ti,ab. | 476 |
| 46. | EMBASE | (skin adj4 trauma\*).ti,ab. | 1980 |
| 47. | EMBASE | (skin adj4 wound\*).ti,ab. | 15943 |
| 48. | EMBASE | (skin adj4 bruis\*).ti,ab. | 555 |
| 49. | EMBASE | (skin adj4 abrasion\*).ti,ab. | 574 |
| 50. | EMBASE | (skin adj4 laceration\*).ti,ab. | 336 |
| 51. | EMBASE | (skin adj4 integrity).ti,ab. | 2361 |
| 52. | EMBASE | (skin adj4 breakdown).ti,ab. | 1410 |
| 53. | EMBASE | (skin adj4 damage).ti,ab. | 7002 |
| 54. | EMBASE | exp laceration/ | 12079 |
| 55. | EMBASE | exp decubitus/ | 21626 |
| 56. | EMBASE | (pressure adj4 (ulcer\* or sore\* or injur\* or wound\*)).ti,ab. | 21784 |
| 57. | EMBASE | or/44-56 | 77199 |
| 58. | EMBASE | 43 and 56 | 186 |
| 59. | CINAHL | (MH "Coronavirus+") | 15546 |
| 60. | CINAHL | (MH "Coronavirus Infections+") | 25762 |
| 61. | CINAHL | (MH "COVID-19") | 14065 |
| 62. | CINAHL | (MH "Middle East Respiratory Syndrome") | 275 |
| 63. | CINAHL | (MH "Severe Acute Respiratory Syndrome") | 2462 |
| 64. | CINAHL | TI covid-19 OR AB covid-19 | 34183 |
| 65. | CINAHL | TI coronavirus OR AB coronavirus | 13103 |
| 66. | CINAHL | TI "corona virus" OR AB "corona virus" | 295 |
| 67. | CINAHL | TI 2019-nCoV OR AB 2019-nCoV | 235 |
| 68. | CINAHL | TI SARS-CoV OR AB SARS-CoV | 340 |
| 69. | CINAHL | TI MERS-CoV OR AB MERS-CoV | 517 |
| 70. | CINAHL | TI "Severe Acute Respiratory Syndrome" OR AB "Severe Acute Respiratory Syndrome" | 3624 |
| 71. | CINAHL | TI "Middle East Respiratory Syndrome" OR AB "Middle East Respiratory Syndrome" | 788 |
| 72. | CINAHL | or/59-71 | 44598 |
| 73. | CINAHL | TI skin N4 injur\* OR AB skin N4 injur\* | 1445 |
| 74. | CINAHL | TI skin N4 tear\* OR AB skin N4 tear\* | 356 |
| 75. | CINAHL | TI skin N4 trauma\* OR AB skin N4 trauma\* | 397 |
| 76. | CINAHL | TI skin N4 wound\* OR AB skin N4 wound\* | 3192 |
| 77. | CINAHL | TI skin N4 bruis\* OR AB skin N4 bruis\* | 96 |
| 78. | CINAHL | TI skin N4 abrasion\* OR AB skin N4 abrasion\* | 85 |
| 79. | CINAHL | TI skin N4 laceration\* OR AB skin N4 laceration\* | 95 |
| 80. | CINAHL | TI skin N4 integrity OR AB skin N4 integrity | 1096 |
| 81. | CINAHL | TI skin N4 breakdown OR AB skin N4 breakdown | 644 |
| 82. | CINAHL | TI skin N4 damage OR AB skin N4 damage | 1212 |
| 83. | CINAHL | (MH "Tears and Lacerations+") | 3842 |
| 84. | CINAHL | (MH "Pressure Ulcer+") | 14497 |
| 85. | CINAHL | TI ( (pressure N3(ulcer\* OR sore\* OR injur\* OR wound)) ) OR AB ( (pressure N3(ulcer\* OR sore\* OR injur\* OR wound)) ) | 14351 |
| 86. | CINAHL | or/73-85 | 29191 |
| 87. | CINAHL | 72 AND 85 | 97 |

**ID of request:** 28137  
**Date of request:** 08/03/2021  
**Date of completion:** 22/03/2021

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