





one case associated with a cutaneous exanthema that we could observe. Our report focuses on a COVID-19-related rash description and is supported by clinical images and histopathological examinations. Histological examination did not show any particular signs that can make this affection different from other rashes of viral aetiology except for extremely dilated vessels in the dermis which could represent a histological diagnostic finding⁸. It should be kept in mind that skin manifestations associated with this virus could present in any form and at any time during the natural history of the disease and we have no data demonstrating a direct correlation with the prognosis of this illness. More studies of the physiopathology of the SARS-CoV-2 action are needed, above all regarding its interaction with endothelial cells in small vessels sites and its possible prognostic role.

Acknowledgements

The patient in this manuscript has given written informed consent to the publication of her case details.

C. Zengarini,¹  G. Orioni,¹  A. Cascavilla,² C. Horna Solera,² C. Fulgaro,² C. Misciali,¹ A. Patrizi,¹ 
V. Gaspari^{1,*} 

¹Unit of Dermatology, Head and Neck Department, St. Orsola Malpighi University Hospital, Bologna, Italy, ²Infectious Diseases Unit, Department of Medical and Surgical Sciences, St. Orsola Malpighi University Hospital, Bologna, Italy

*Correspondence: V. Gaspari. E-mail: valeria.gaspari@aosp.bo.it

References

- Estébanez A, Pérez-Santiago L, Silva E, Guillen-Climent S, García-Vázquez A, Ramón MD. Cutaneous manifestations in COVID- 19: a new contribution. *J Eur Acad Dermatol Venereol* 2020. <http://dx.doi.org/10.1111/jdv.16474>
- Guan W, Ni Z, Hu Y *et al*. Clinical characteristics of coronavirus disease 2019 in China. *N Engl J Med*. 2020; **382**: 1708–1720. <http://dx.doi.org/10.1056/nejmoa2002032>
- Recalcati S. Cutaneous manifestations in COVID- 19: a first perspective. *J Eur Acad Dermatol Venereol* 2020. <https://doi.org/10.1111/jdv.16387>
- Hunt M, Koziatek C. A case of COVID-19 pneumonia in a young male with full body rash as a presenting symptom. *Clin Pract Cases Emerg Med* 2020; **4**: 2. <http://dx.doi.org/10.5811/cpcem.2020.3.47349>
- Mahé A, Birckel E, Krieger S, Merklen C, Bottlaender L. A distinctive skin rash associated with coronavirus disease 2019? *J Eur Acad Dermatol Venereol* 2020. <https://doi.org/10.1111/jdv.16471>
- Joob B, Wiwanitkit V. COVID-19 can present with a rash and be mistaken for dengue. *J Am Acad Dermatol* 2020; **82**: e177. <http://dx.doi.org/10.1016/j.jaad.2020.03.036>
- Henry D, Ackerman M, Sancelme E, Finon A, Esteve E. Urticarial eruption in COVID-19 infection. *J Eur Acad Dermatol Venereol* 2020. <https://doi.org/10.1111/jdv.16472>
- Singh S, Khandpur S, Arava S *et al*. Assessment of histopathological features of maculopapular viral exanthem and drug-induced exanthem. *J Cutan Pathol* 2017; **44**: 1038–1048. <http://dx.doi.org/10.1111/cup.13047>

DOI: 10.1111/jdv.16569

Hand disinfection in the combat against COVID-19

Dear Editor,

The World Health Organization (WHO) has declared a global health emergency over a new coronavirus. The new coronavirus (SARS-CoV-2) has raised global attention with raising concerns of rapid spread from human-to-human. Like severe acute respiratory syndrome (SARS)-nCoV, 2019-nCoV can be passed directly from person to person by respiratory droplets and may also be transmitted through contact and fomites.¹

Currently, there is no vaccine or specific therapeutic option against the new virus. Hygienic hand antisepsis is one of the most important measures in preventing healthcare- and outbreak-associated viral infections. Hence, there is an emergency in identifying efficacious antiviral agents to combat the disease.²

Appropriate measures to decrease the risk of transmission from infected person to the patients, visitors and healthcare workers include hand hygiene. Appropriate care is to be considered for higher risk patients with chronic lung disease, diabetes and renal failure, as well as immunocompromised patients. WHO formulations I and II (two alcohol-based hand rubs) or povidone-iodine (PVP-I) are highly effective against the enveloped coronaviruses (Table 1), as well as other antiseptic agents.³ If alcohol-based hand rubs (gel or foam) or povidone-iodine are not available, ethanol 70% solution may be used. These are all available as commercial solutions – however, the correct use is crucial and has received insufficient investigation.

The accessibility of the WHO/PVP-I formulations as well as their correct use is therefore likely to be of significant benefit for human health on a global scale, particularly in the developing countries.³ Repeated hand disinfection must be paired with simple handwashing. This has been shown to be of even increased

Table 1 Hand disinfectants

Type of antiseptic	Inactivates
Iodine	<ul style="list-style-type: none"> Bacteria Bacterial spores Enveloped viruses Non-enveloped viruses
Ethanol	<ul style="list-style-type: none"> Bacteria Enveloped viruses Non-enveloped viruses ‘variable’
Phenolic	<ul style="list-style-type: none"> Bacteria Enveloped viruses Non-enveloped viruses ‘variable’
Chlorine	<ul style="list-style-type: none"> Bacteria Bacterial spores ‘variable’ Enveloped viruses Non-enveloped viruses
Quaternary ammonium	<ul style="list-style-type: none"> Bacteria Bacterial spores

efficiency compared to disinfection for both enveloped and non-enveloped viruses.⁴

Ultraviolet germicidal irradiation (UVGI) is a disinfection method that uses UV-C radiation to inactivate microorganisms by causing deoxyribonucleic acid damage (DNA) and preventing replication. Inactivation of Middle East respiratory syndrome coronavirus (MERS-CoV) in plasma with riboflavin and UV-A light has been reported. In addition, the efficacy of whole room UV-C disinfection has been reported. Whole room UV-C disinfection system during coronaviruses outbreaks, including severe acute respiratory syndrome coronavirus (SARS-CoV) and MERS-CoV, has been demonstrated in previous studies.^{5,6} This may prevent the nosocomial spread of the virus and protect staff in the process. Hamzavi *et al.*⁷ proposed repurposing of phototherapy devices, including these UVB units, to serve as a platform for ultraviolet-C (UV-C) germicidal disinfection.

It has been also noted that 0.5% sodium hypochlorite with colour additive achieved full viral inactivation of human CoV 229E.^{8,9} Newly implemented strategies include application of long-lasting compounds based on quaternary ammonium chloride on buttons and check-in kiosk and other surfaces in public spaces.




Front-line medical workers are facing tremendous pressure, containing major risk of infection and insufficient contamination protection. Hand hygiene, while an important preventive measure, is insufficient and should not stand alone for control of SARS-CoV-2 spread. Currently, there are no data to describe the frequency of hands contamination with coronavirus, or the viral load on hands after patient contact or touching contaminated surfaces. WHO recommends applying alcohol-based hand rubs for the decontamination of hands, e.g. after removing gloves.¹⁰ Hospitals should have infection control strategies in place for managing the spread of infection, including personal protective equipment, such as N95 respirators, double gloves, gowns, and goggles, alcohol-based hand sanitizer and soap.

Funding source

None.

Acknowledgements

We confirm that the manuscript has been read and approved by all the authors, that the requirements for authorship as stated earlier in this document have been met and that each author believes that the manuscript represents honest work.

M. Goldust,¹  A. Abdelmaksoud,²  A.A. Navarini^{1,*} 

¹Department of Dermatology & Allergy, University Hospital Basel, Basel, Switzerland, ²Mansoura Dermatology, Venerology and Leprology Hospital, Mansoura, Egypt

*Correspondence: A.A. Navarini. E-mail: alexander.navarini@usb.ch

References

- Chen J. Pathogenicity and transmissibility of 2019-nCoV-A quick overview and comparison with other emerging viruses. *Microbes Infect* 2020; **22**: 69–71. <https://doi.org/10.1016/j.micinf.2020.01.004>
- Chen N, Zhou M, Dong X *et al.* Epidemiological and clinical characteristics of 99 cases of 2019 novel coronavirus pneumonia in Wuhan, China: a descriptive study. *Lancet* 2020; **395**: 507–513.
- Tschudin-Sutter S, Rotter ML, Frei R *et al.* Simplifying the WHO 'how to hand rub' technique: three steps are as effective as six—results from an experimental randomized crossover trial. *Clin Microbiol Infect* 2017; **23**: 409.e1–409.e4.
- Wolfe MK, Gallandat K, Daniels K, Desmarais AM, Scheinman P, Lantagne D. Handwashing and Ebola virus disease outbreaks: a randomized comparison of soap, hand sanitizer, and 0.05% chlorine solutions on the inactivation and removal of model organisms Phi6 and *E. coli* from hands and persistence in rinse water. *PLoS ONE* 2017; **12**: e0172734.
- Bedell K, Buchaklian AH, Perlman S. Efficacy of an automated multiple emitter whole-room ultraviolet-C disinfection system against coronaviruses MHV and MERS-CoV. *Infect Control Hosp Epidemiol* 2016; **37**: 598–599.
- Pinna D, Sampson-Johannes A, Clementi M *et al.* Amotosalen photochemical inactivation of severe acute respiratory syndrome coronavirus in human platelet concentrates. *Transfus Med* 2005; **15**: 269–276.
- Hamzavi IH, Lyons AB, Kohli I *et al.* Ultraviolet germicidal irradiation: possible method for respirator disinfection to facilitate reuse during COVID-19 pandemic. *J Am Acad Dermatol* 2020; **826**: 1511–1512. <https://doi.org/10.1016/j.jaad.2020.03.085>
- Tyan K, Kang J, Jin K *et al.* Evaluation of the antimicrobial efficacy and skin safety of a novel color additive in combination with chlorine disinfectants. *Am J Infect Control* 2018; **46**: 1254–1261.
- Chang Xu H, Rebaza A, Sharma L, Dela Cruz CS. Protecting health-care workers from subclinical coronavirus infection. *Lancet Respir Med* 2020; **8**: e13.
- Kampf G, Todt D, Pfaender S *et al.* Persistence of coronaviruses on inanimate surfaces and their inactivation with biocidal agents. *J Hosp Infect* 2020; **104**: 246–251.

DOI: 10.1111/jdv.16574

Acro-ischæmia in hospitalized COVID-19 patients

Dermatological manifestations of the coronavirus disease 2019 (COVID-19) may include unspecific macular erythematous rash, urticarial lesions and chickenpox-like vesicles.^{1,2} Acro-ischæmic lesions have been described in two different types of COVID-19 patients: firstly critically ill patients with severe limb ischæmia and secondly paucisymptomatic young patients with chilblain-like lesions.³ The aetiopathogenesis and clinical implications of these lesions remain unclear.

This letter reports three cases admitted to our hospital with bilateral pneumonia during the COVID-19 pandemic in Madrid (Spain), who developed acral ischæmic lesions during their hospitalization period. All three patients presented with atypical bilateral pneumonia and positive nasopharyngeal swab for severe