



Since January 2020 Elsevier has created a COVID-19 resource centre with free information in English and Mandarin on the novel coronavirus COVID-19. The COVID-19 resource centre is hosted on Elsevier Connect, the company's public news and information website.

Elsevier hereby grants permission to make all its COVID-19-related research that is available on the COVID-19 resource centre - including this research content - immediately available in PubMed Central and other publicly funded repositories, such as the WHO COVID database with rights for unrestricted research re-use and analyses in any form or by any means with acknowledgement of the original source. These permissions are granted for free by Elsevier for as long as the COVID-19 resource centre remains active.



COVID-19—1 year later
 Edited by K. Drenovska et al.

Commentary: COVID-19 pandemic — 1 Year later



...Écoutant, en effet, les cris d'allégresse qui montaient de la ville, Rieux se souvenait que cette allégresse était toujours menacée. Car il savait ce que cette foule en joie ignorait, et qu'on peut lire dans les livres, que le bacille de la peste ne meurt ni ne disparaît jamais, qu'il peut rester pendant des dizaines d'années endormi dans les meubles et le linge, qu'il attend patiemment dans les chambres, les caves, les malles, les mouchoirs et les paperasses, et que, peut-être, le jour viendrait où, pour le malheur et l'enseignement des hommes, la peste réveillerait ses rats et les enverrait mourir dans une cité heureuse.

La Peste, Albert Camus, 1947

Hope, joy, but also the skepticism of the wise. This is how the novel by the Nobel Prize-winning author Albert Camus *La Peste* (*The Plague*) ends, very much corresponding to what we observe and feel at present while still wondering when and how the COVID-19 pandemic will end.

The “first wave” of the infection has already gone, carrying away many colleagues, friends, and human destinies. We impatiently wait to acquire herd immunity or for the vaccines to come and save us from this misfortune. On March 11, 2020, the infection was declared a pandemic by the World Health Organization (WHO). At the end of the year 2020, with a message of hope and commemoration, the Patron of the WHO Regional Office for Europe, Her Royal Highness the Crown Princess of Denmark, looked back at the extraordinary year, during which too many have faced sorrow and heartache, having been forced to alter their plans, expectations, traditions, and way of life.¹

Like each new year that brings hope and promise, 2021 also commences with a greater understanding of the disease and a new gift - the introduction of vaccines. Mass immunization campaigns have begun worldwide, particularly among of the various exposed or vulnerable populations. Would this be the solution? What about the newly detected SARS-CoV-2 mutations and highly contagious viral variations, accompanied by a respective burst of recently introduced and planned

lockdown measures? Will the vaccines be effective against them? We are uncertain, but there is always hope for happiness to return.

Facing the enemy

In March 2020, an Iranian author stated that “as in any battle, knowing the enemy is a major step for defeating it.”² During the past year, wider spread of SARS-CoV-2 in various countries and higher numbers of deaths were constantly announced, but our knowledge about this pandemic was continuously increasing, thus moving us closer to the dreamed victory.²

Since the beginning of the COVID-19 outbreak, a lot of experience has been gained in various fields of science and medicine in terms of prevention, diagnosis, treatment, and rehabilitation of the disease. The way in which it has been transmitted, clinical symptoms, and preventive measures have been elucidated early in the course of the pandemic.^{3,4} The genome of SARS-CoV-2 was sequenced by Chinese researchers.⁵ The structure of the virus spike protein was revealed by cryogenic electron microscopy technique, which was extremely helpful in vaccine design.⁶ Antiviral drugs were widely investigated to obtain the effective agents against SARS-CoV-2. The pharmaceutical industry focused its research efforts on the development of preventive vaccines. But hopes are accompanied by worries and possible future disappointments of the quality and duration of the respective acquired immunity or of their potential short- and long-term side effects.

Lessons learned by dermatologists

For the dermatologist, the year 2020 was rich in emerging wisdom regarding the effects of COVID-19 on cutaneous

diseases and its global impact on dermatology. We are already familiar with the pros and cons of personal protective equipment (PPE) and the presence of specific cutaneous manifestations of COVID-19.^{7,8} Our capability to detect, recognize, classify, and treat these symptoms has decisively improved. In addition, many other lessons have been learned concerning the cytokine storm⁹ and the impact of dermatologic drugs on it,¹⁰ the eventual role of vitamin D on the skin and immune system,¹¹ the skin-related inflammatory responses,¹² and many other issues.

We continue to follow the impact of COVID-19 on the clinical presentation and course of various cutaneous diseases, as well as on the specific COVID-19 signs and the general impact of the current pandemic on dermatology worldwide.

COVID-19 and the skin

The second part of our special issue opens with the review by Drenovska et al,¹³ who report on the impact of COVID-19 on a group of rare, acquired, but chronic and sometimes life-threatening skin conditions - the autoimmune blistering diseases (AIBD). Clinical examples on the pemphigus and pemphigoid group illustrate the eventual correlation between the infection and the respective AIBD. Drenovska et al¹³ present an exhaustive review of the recently reported literature, focusing on patient information and registries for COVID-19 documentation, as well as providing recommendations on the main treatment strategies and COVID-19 vaccination for AIBD patients.¹³

Ramirez-Quizon and Murrell¹⁴ dedicate the second review on another group of a vulnerable population suffering from a rare, inherited blistering disease - epidermolysis bullosa (EB). These authors evaluate the challenges faced by EB patients during the pandemic and share their experience and recommendations based on a recently published international consensus of EB experts, with the hope of decreasing preventable morbidity or even mortality in this unique subset of patients.¹⁴

The salient question among dermatologists during the pandemic has been whether specific skin changes exist and to what extent they may serve as diagnostic clues for the infection. Schwartz and Lambert¹⁵ delineate the great variety of SARS-CoV-2-related specific and nonspecific cutaneous lesions. These lesions have been grouped into six categories, with the following three distinct indicative patterns: vesicular (varicella-like), vasculopathic, and chilblains-like (including “COVID toes” and “COVID fingers”) and three less indicative types: dermatitic, maculopapular, and urticarial morphologies.¹⁵

The team of Burke et al¹⁶ specifically focus on the SARS-CoV-2-related pernio-like lesions - “COVID toes.” Whether COVID toes represent a dermatologic marker of an active

viral infection, a delayed immune response to the virus during the convalescent phase, or an epiphenomenon indirectly related to COVID-19 remains unclear, but the authors emphasize the importance of public and physician awareness of COVID toes.¹⁶

Drago et al¹⁷ highlight a detailed spectrum of infectious enanthems, including SARS-CoV-2-related oral manifestations. Recognition of different patterns of enanthems, their associated exanthems, and systemic findings, together with epidemiology, are crucial for correct diagnosis, prompt treatment, and prognosis.¹⁷

Many of the COVID-19-related cutaneous changes we have been discussing were initially described by Italian and American dermatologists. Undoubtedly, of all the countries in the world and in Europe, Italy was affected the earliest and most severely by COVID-19. Similarly, the United States is currently reporting the highest infection rate of any country in the world. It is, therefore, an opportune moment to present in the current issue the Italian experience by Musumeci et al¹⁸ and the American perspective by Saardi and Petronic-Rosic.¹⁹

Vassileva et al²⁰ present an exhaustive review on a broad spectrum of dermatologic drugs that may find new indications for patients with COVID-19. This analysis is followed by the appropriate location and requirements for conducting phototherapeutic procedures under pandemic conditions, discussed by Dourmishev and Guleva.²¹

When the pandemic began, dermatologists were among the first medical specialists to derive consensus based recommendations for protection against COVID-19 through wearing PPE. In their review, Bhargava et al²² assess PPE availability among dermatologists, interpreting the results of a web-based, global study.

Global impact of COVID-19 on dermatologic science, practice, and education

Karadag et al²³ comment on the PPE benefits and disadvantages, and further analyze the wide range of COVID-19-related changes introduced in dermatologic practice. This is followed by a more focused review on tele dermatology, virtual conferences, and e-learning by Bhargava et al.²⁴ Next,

Wall et al²⁵ provide an overview on the available patient registries, suggesting moving toward an international federation of patient registries. This team of respected dermatologists points out that data from the registries would help monitor the outcomes of various treatments during the COVID-19 crisis and would facilitate evaluation of SARS-CoV-2-related morbidity and mortality.²⁵ Finally, the global impact of the COVID-19 pandemic on dermatology practice is summarized in the work of Kroupouzou et al.²⁶



Fig. 1 A stela immortalizing the Nobelist Albert Camus in his beloved Tipasa, Algeria.

Suspicion and hope hand by hand

Tempus fugit, as noted in Part I²⁷ We have moved forward but are still a distance from our destination. What comes next? Most likely our future topic will be dedicated to discussion about the COVID-19 vaccine side effects on the skin. Who knows? Suspicion and hope go hand by hand, as Banquo stated in his soliloquy from Shakespeare's play "Macbeth."²⁸

Again, we return to the words of Albert Camus as a fitting end to this commentary: Did he more than foreshadow the COVID-19 pandemic in "The Plague?" In his lyrical essay, "Return to Tipasa,"²⁹ Camus revisits this mystical seaside Roman ruin of his childhood in Algeria, as he adjusts to the world's new normal. Camus has awakened from despair with a revitalized spirit of purpose upon returning to glorious Tipasa, Algeria (Fig. 1). Let us hope we can greet our world with the same joy after having vanquished COVID-19.

Declaration of Competing Interest

The authors declare no conflict of interest.

Kossara Drenovska, MD, PhD*, Snezhina Vassileva, MD,
PhD
Department of Dermatology, Medical University—Sofia,
Sofia, Bulgaria

Robert A. Schwartz, MD, MPH, DSc (Hon), FRCP Edin,
W. Clark Lambert, MD, PhD, FRCP Edin
Department of Dermatology, Rutgers-New Jersey Medical
School, Newark, New Jersey, USA
Department of Pathology, Immunology and Laboratory
Medicine, Rutgers-New Jersey Medical School, Newark,
New Jersey, USA

*Corresponding author:
E-mail address: kosara@lycos.com

References

1. Princess Mary of Denmark. Year-end message by Her Royal Highness the Crown Princess of Denmark, Patron of the WHO Regional Office for Europe World Health Organization, 2020. Available at: <https://www.euro.who.int/en/health-topics/health-emergencies/coronavirus-covid-19/news/news/2020/12/year-end-message-by-her-royal-highness-the-crown-princess-of-denmark-patron-of-the-who-regional-office-for-europe>. Accessed January 10, 2021.
2. Negahdaripour M. The battle against COVID-19: where do we stand now? *Iran J Med Sci.* 2020;45:81–82.
3. Zhang MQ, Wang XH, Chen YL, et al. Clinical features of 2019 novel coronavirus pneumonia in the early stage from a fever clinic in Beijing. *Zhonghua Jie He He Hu Xi Za Zhi.* 2020;43:E013 [in Chinese].
4. Guan W, Ni Z, Yu Hu, et al. Clinical characteristics of coronavirus disease 2019 in China. *N Engl J Med.* 2020;382:1708–1720.
5. Wu A, Peng Y, Huang B, et al. Genome composition and divergence of the novel coronavirus (2019-nCoV) originating in China. *Cell Host Microbe.* 2020;27:325–328.
6. Wrapp D, Wang N, Corbett KS, et al. Cryo-EM structure of the 2019-nCoV spike in the prefusion conformation. *Science.* 2020;367:1260–1263.

7. Kantor J. Behavioral considerations and impact on personal protective equipment use: early lessons from the coronavirus (COVID-19) pandemic. *J Am Acad Dermatol.* 2020;82:1087–1088.
8. Genovese G, Moltrasio C, Berti E, Marzano AV. Skin manifestations associated with COVID-19: current knowledge and future perspectives. *Dermatology.* 2021;237:1–12.
9. Garg S, Garg M, Prabhakar N, Malhotra P, Agarwal R. Unraveling the mystery of COVID-19 cytokine storm: from skin to organ systems. *Dermatol Ther.* 2020;33:e13859.
10. Schmitz V, Dos Santos JB. COVID-19, leprosy, and neutrophils. *PLoS Negl Trop Dis.* 2021;15.
11. Slominski RM, Stefan J, Athar M, et al. COVID-19 and vitamin D: a lesson from the skin. *Exp Dermatol.* 2020;29:885–890.
12. Criado PR, Pagliari C, Carneiro FRO, Quaresma JAS. Lessons from dermatology about inflammatory responses in COVID-19. *Rev Med Virol.* 2020;30:e2130.
13. Drenovska K, Vassileva S, Tanev I, Joly P. Impact of COVID-19 on autoimmune blistering diseases. *Clin Dermatol.* 2021;41, in press.
14. Ramirez-Quizon M, Murrell D. Managing epidermolysis bullosa during the COVID-19 pandemic: experience and ideals. *Clin Dermatol.* 2021;41, in press.
15. Schwartz RA, Lambert WC. COVID-19 Specific skin changes related to SARS-CoV-2 visualizing a monumental public health challenge. *Clin Dermatol.* 2021;41, in press.
16. Burke KT, McGinnis KS, Petronic-Rosic V. COVID toes: pernio-like lesions. *Clin Dermatol.* 2021;41, in press.
17. Drago F, Ciccarese G, Merlo G, et al. Oral manifestations in viral and bacterial infections during the COVID-19 pandemic. *Clin Dermatol.* 2021;41, in press.
18. Musumeci ML, Nasca MR, Micali G. COVID-19: the Italian experience. *Clin Dermatol.* 2021;41, in press.
19. Saardi K, Petronic-Rosic V. COVID-19—the American perspective. *Clin Dermatol.* 2021;41, in press.
20. Vassileva S, Mateeva V, Drenovska K. Drug repurposing of dermatologic medications to treat COVID-19: science or fiction? *Clin Dermatol.* 2021;41, in press.
21. Dourmishev L, Guleva D. Ultraviolet diagnostic and treatment modalities in COVID-19 pandemic. *Clin Dermatol.* 2021;41, in press.
22. Bhargava S, McKeever C, Sadoughifar R, Kroumpouzou G. Availability of personal protective equipment (PPE) among dermatologists in the COVID-19 pandemic: assessment and risk factors in a web-based, global study. *Clin Dermatol.* 2021;41, in press.
23. Karadag AS, Kayiran MA, Wollina U. How dermatology has changed in the COVID-19 pandemic. *Clin Dermatol.* 2021;41, in press.
24. Bhargava S, Negbenebor N, Sadoughifar R, Ahmad S, Kroumpouzou G. Virtual conferences and e-learning in dermatology during COVID-19 pandemic: results of a web-based, global survey. *Clin Dermatol.* 2021;41, in press.
25. Wall D, Alhusayen R, Arents B, et al. Learning from disease registries during a pandemic: moving towards an international federation of patient registries. *Clin Dermatol.* 2021;41, in press.
26. Bhargava S, Negbenebor N, Sadoughifar R, Ahmad S, Kroumpouzou G. Global impact on dermatology practice due to the COVID-19 pandemic. *Clin Dermatol.* 2021;41, in press.
27. Vassileva S, Drenovska K, Lambert WK, Schwartz RA. Skin during the COVID-19 pandemic: part I. *Clin Dermatol.* 2021;39, in press.
28. Shakespeare WBanquo's soliloquy. The Tragedy of Macbeth. *Act III, scene I.* 2020.
29. Camus A. *Return to Tipasa*. 1954. Available at: <https://www.youtube.com/watch?v=7KUEXA134OA>. Accessed January 17, 2021.