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Letter to Editors

A chilblain epidemic during the COVID-19 pandemic. A sign of natural resistance to SARS-CoV-2?

Introduction

Since the start of the COVID-19 pandemic, “epidemics” of chilblains or chilblain-like acral lesions have been reported in the social media, the general press and the medical literature in Italy, Spain, the UK and France [1–5]. This was also our experience in the region of Alsace which was the earliest to be hit hard by the COVID-19 pandemic in France.

The great majority of the cases we observed and those reported in the literature share the following common features:

- lesions were of sudden onset in young patients without a previous history of chilblains in most of them and they were not necessarily triggered by exposure to cold;
- those young patients were otherwise asymptomatic or pauci-symptomatic and only a few had mild clinical signs compatible with COVID-19;
- none of them had pneumonia or severe manifestations of COVID-19;
- clinical signs of COVID-19 or contact with infected persons occurred a few days to one month before chilblains;
- SARS-CoV-2 infection could be demonstrated by nasopharyngeal swab or by serology only in a very limited number of patients.

The occurrence of an unusual high number of new cases of chilblain a few weeks after the start of the COVID-19 epidemic in many countries is probably not coincidental. Chilblains are a prototypical sign of a few inherited disorders of innate immunity, characterized by a strong interferon signature and a severe microangiopathy, called the type I interferonopathies [6,7]. I therefore hypothesize that in a few genetically predisposed individuals the contact with SARS-CoV-2 triggers a strong interferon response, of which chilblains are the cutaneous expression. In some of them, this strong interferon response probably allows the clearing of the virus without intervention of the adaptive immune system, explaining the lack of antibodies in the patients who were tested so far. If this hypothesis holds true, that would suggest the possibility of a natural resistance to SARS-CoV-2 infection in a few individuals. That would also mean that those naturally protected individuals will not develop antibodies and would fail serologic detection, which is important in view of the interpretation of epidemiologic studies based on seroprevalence.

Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Appendix A. Supplementary data

Supplementary data to this article can be found online at https://doi.org/10.1016/j.mehy.2020.109959.

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