LETTER TO THE EDITOR

Detection of a second outbreak of chilblain-like lesions during COVID-19 pandemic through teledermatology

Editor

Teledermatology (TD) was previously described as an efficient substitute for in-person visits for COVID-19-associated lesions.1 During the first COVID-19 wave, chilblain-like lesions (CLLs) were the most reported dermatological manifestation.2–4 Although SARS-CoV-2 infection polymerase chain reaction and serology testing were negative for most cases, this unexpected outbreak of chilblains like lesions remained remarkable.5 To date, it is unclear whether CLL outbreak reported during the first COVID-19 pandemic is related to media release of this particular sign right after the wave or whether observed CLLs are truly associated with COVID-19 disease.6 Therefore, we aimed to evaluate the prevalence of request with the stated diagnosis of CLLs observed in two TD networks (store and forward requests addressed by either general practitioner dermatologists or institutions) between January and December 2020 and to compare this prevalence to that observed between January and December 2019 in one of the two TD centres. In 2020, the monthly number of COVID-19 deaths and CLLs was visualized on the same graph. Continuous variables were compared using Wilcoxon test and categorical variable using chi-square test.

In 2020, out of 4493 TD requests, 137 were for CLLs (3%). In 2019, out of 3554 requests, 11 were for CLLs (0.3%). Between 2019 and 2020, the number of requests for CLLs increased up to ten times. Two peaks of CLL prevalence were identified in 2020, one in March/April (period 1) and another in November/December (period 2); these two periods fitted perfectly the COVID-19 peaks of deaths in France (Fig. 1). The characteristics of the requests during the COVID-19 pandemic are summarized in Table 1. Most of the requesting physicians were general practitioners (n = 71 (86%) and n = 29 (97%) for the periods 1 and

Figure 1  Monthly requests for chilblain-like lesion in 2020 and in 2019 and COVID-19 death curve in 2020.
Neither patients’ median age nor sex ratio significantly differed between the two time periods. A minority of patients had COVID-19 symptoms or a recent COVID-19 contact: 41% during the first period vs 23% during the second period. During the second period, more than half of physicians associated observed CLLs to COVID-19. The PCR and serology results were not available.

Our results highlight the following: (1) an increase in the number of TD requests for CLLs between 2019 and 2020, (2) two peaks of TD requests for CLLs concomitant with peaks of COVID-19 deaths in 2020 and (3) general practitioners as major requesting physicians.

The causal link between chilblain-like lesion and COVID-19 is highly controversial. Similar to the first CLL outbreak, which was observed away from cold weather, TD networks also enabled the detection of a second CLL outbreak before the cold weather of winter and concomitant with the second peak of COVID-19 deaths in France. These findings confirmed the second wave of CLLs previously described by Piccolo et al. The clinical and histopathological features of COVID-19-associated CLLs have been described as similar to non-COVID-19-associated CLLs. Histological studies showed a mild interface dermatitis featuring vacuolar degeneration of the basal epidermal layer, and SARS-CoV-2 in endothelial cells of skin biopsies was detected by immunohistochemistry and electron microscopy.

As in previously reported literature, the majority of TD CLLs were observed in young and healthy patients, with no sex predilection. CLLs seem to be associated with asymptomatic or mildly symptomatic COVID-19 patients. The low rate of past history of chilblain or Raynaud phenomenon highlights the absence of associated autoimmune disease in most cases.

In conclusion, our study reinforces the hypothesis that the association between CLLs and COVID-19 infection is not fortuitous. It also places TD as a good alternative for face-to-face consultations for detecting early dermatological manifestations during times of crisis.

**IRB approval status**
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**Conflicts of interest**
None to declare.

**Table 1** Characteristics of TD requests during the two pandemic outbreaks in France

|                          | Chilblain-like lesions Period 1 | Chilblain-like lesions Period 2 | P     |
|--------------------------|---------------------------------|---------------------------------|-------|
|                          | N (%)                          | N (%)                           |       |
| Centre, n                | Centre 1: 16 (20)              | Centre 2: 10 (29)               |       |
| Requesting physician n (%) | GP: 71 (86)                    | Institution: 2 (1)              |       |
|                          | Dermatologist: 5 (0)           |                                 |       |
| Median age (range) in years IQR [25–75] | Centre 1: 29 (21–39)          | Centre 2: 23.5 (18.8–36)        | 0.3   |
|                          | NA – 5                         | NA – 2                          |       |
| Female                   | 49 (59)                        | 15 (50)                         | 0.3   |
| Past chilblain history   | 2 (2.3)                        | 1 (3.3)                         |       |
|                          | NA – 39                        |                                 |       |
| Raynaud phenomenon       | 0 (0)                          | 3 (10)                          |       |
|                          | NA – 40                        |                                 |       |
| COVID symptoms or contact, yes | 34 (41)                      | 7 (23)                          | 0.2   |
|                          | NA – 1                         |                                 |       |
| Physicians’ suspicion of COVID association | 42 (51)                   | 18 (60)                         |       |
|                          | NA – 39                        |                                 |       |

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