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Further evidence that chilblains are a cutaneous manifestation of COVID-19 infection

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Dear Sir,

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A range of cutaneous conditions including chilblain-like lesions have been reported in patients with Coronavirus 2019 (COVID-19) due to severe acute respiratory Syndrome coronavirus 2 (SARS-Cov-2). Using clinical data and images, the authors of a recent nationwide Spanish survey identified 5 clinical patterns which were associated with different patient demographics, onset (timing), and prognosis ¹. These include 'acral areas of erythema with vesicles or pustules (i.e. pseudo-chilblain)' which occurred in a fifth (19%) of patients with COVID-19 disease¹. Pseudo-chilblains affected younger patients and occurred later in the course of disease with a mean duration of 12.7 days¹. Furthermore, pseudo-chilblains were associated with a less severe disease course including need for intensive care admission and mortality. The lesions were not uncommonly painful (32%) or associated with pruritus (30%)¹. Against this background, our aim was to examine whether internet searches for chilblains have increased during the current COVID-19 pandemic.

Google Trends® allows analysis of the relative popularity of search trends over time and geographical location (2). We examined the term 'Chilblains' in the 'health category' to ascertain if there were any obvious recurrent temporal search patterns worldwide and the UK. We examined data over the past 12 months which is freely available within the public domain and therefore ethical approval was not required.

There were clear trends ('spikes') in the relative popularity of chilblains in early 2020 (Figure 1). In Figure, 1 there are reported pictures of 2 individual's chilblains of different severity that were observed in patients without previous chilblains during the COVID-19 pandemic.

Our data shows a clear relative increase in internet searches relating to chilblains in early 2020 during the COVID-19 pandemic. There are a number of possible explanations. This could include true chilblain-like lesions secondary to COVID-19 infection. Another explanation is that patients have used internet-based information to learn about chilblains following interaction with media content describing chilblain-like lesions in patients with COVID-19 (3). Finally, temporally these are unlikely temporally to represent recurrent chilblain recurrence provoked by cold weather (e.g. similar to worsening of Raynaud's phenomenon in colder weather) (4). For example, in the

previously described Spanish study, pseudo-chilblains occurred in a period of warm weather, and virtually all (70 out of 71) patients did not have a previous history of chilblains¹. There is also a tentative emerging suggestion that children are disproportionately affected by chilblains, potentially due to more mild disease.

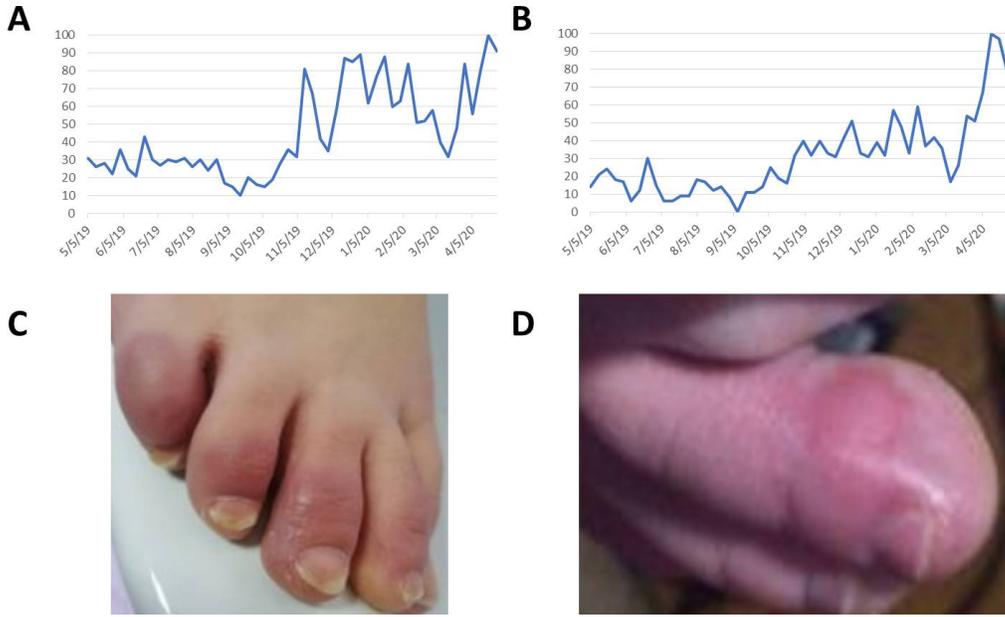
In conclusion, our data further suggests that chilblain-like lesions might occur in COVID-19 infection. Further research is needed to confirm the potential clinical utility of chilblain lesions in COVID-19 including to facilitate disease suspicion and prognostication.

References

1. Galván Casas C, Català A, Carretero Hernández G, et al. Classification of the cutaneous manifestations of COVID-19: a rapid prospective nationwide consensus study in Spain with 375 cases. *Br J Dermatol* 2020. doi:10.1111/bjd.19163 [Epub ahead of print]
2. <https://trends.google.com/trends/?geo=US> [Accessed 1st May 2020]
3. <https://news.sky.com/story/coronavirus-five-skin-conditions-linked-to-covid-19-identified-study-finds-11981441> [Accessed 1st May 2020]
4. Hughes M. Effect of Season on Internet Searches for Information on Raynaud Phenomenon. *J Rheumatol* 2019;**46**:1543-1544.

Figure legend

Figure 1. Chilblains in 2020 during COVID-19. Google Trends® data (05/05/2019 to 26/04/2020) for chilblains worldwide (A) and for the USA (B). Numbers (y axis) represent the search interest relative to the highest point for the given region and time (x axis), where 100 is the peak popularity for the term, 0 there is not enough data for the search term. Chilblains (C&D) that have occurred in early 2020 in children and adults and all of whom did not have a history of previous chilblain occurrence. The erythema as well as the vesicles and pustules may be clearly seen.



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