Chilblain-like acral lesions in COVID-19: management and potential implications for understanding microangiopathy

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We read with interest the comment by McMahon and colleagues describing the range of cutaneous manifestations of COVID-19. We agree that most acral chilblain- or pernio-like lesions (commonly referred to as ‘COVID toes’) occur in young, previously healthy patients with relatively mild COVID-19 and frequently negative tests for SARS-CoV-2.

Most resolve spontaneously without any treatment approximately two weeks from onset, particularly in children and adolescent patients. However, in our multidisciplinary post-COVID-19 follow-up clinic of adult patients and specialist tertiary referral centre for paediatric and adolescent Rheumatology, we have also observed a subgroup of patients with persistent chilblain lesions, similar to McMahon and colleagues’ report. Clinically these chilblain-like lesions resemble the digital vasculopathy of connective tissue disease. If the lesions do not resolve within 30 days of onset, we recommend screening for other underlying causes (which may have been triggered by COVID-19) and therapeutic options including aspirin, topical corticosteroids (with oral prednisolone in severe cases), hydroxychloroquine and vasodilators, and prostacyclin analogues (e.g. iloprost) if refractory [Appendix]. Our recommended management framework is based on the U.K. and British Society for Rheumatology guidelines for the management of Raynaud’s phenomenon and digital ischaemia in systemic sclerosis. The optimal management, including treatment duration of chilblain-like lesions in long-COVID is currently unclear; and will likely evolve as clinical experience and data accumulates for this new disease.

As the COVID-19 pandemic continues unabated, attention is now turning to the considerable proportion of patients with multi-organ morbidity, including unexplained symptoms such as dyspnoea and fatigue, that persist well beyond the initial viraemic phase, exerting pressure on already strained healthcare resources. Endothelial cell dysfunction, hypercoagulability and inflammation are considered central to the aetio-pathogenesis in acute COVID-19, but there is a growing need to characterise the clinical course of symptoms and disease mechanisms of long-COVID to facilitate prognostication and targeted interventions.

Nailfold capillaroscopy enables identification of microcirculatory morphological alterations and is widely used in Rheumatological practice. There is emerging evidence to support the utility of nailfold capillaroscopy to detect and quantify endothelial alteration in COVID-19.
Microvascular abnormalities have been demonstrated on nailfold capillaroscopy, in both fingers and toes of patients with COVID-19, even when lesions are confined only to the toes, suggesting that chilblains may be an overt manifestation of a systemic process. We propose that nailfold microangiopathy, as assessed by capillaroscopy, may represent a peripheral measure of central pathology. Nailfold capillaroscopy might provide a surrogate non-invasive ‘digital’ window to the lung to investigate unexplained dyspnoea.

We call for further research to investigate microangiopathy in long-COVID and advocate prospective, longitudinal data capture for patients with persistent chilblain-like lesions in COVID-19, including nailfold capillaroscopy where available, to better understand pathomechanisms and inform evidence-based guidelines.

Author Contribution:
PM, KH, DE and CD drafted the manuscript. All authors contributed to discussions, revised and approved the manuscript.

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