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Letter to the editors

Delayed hypersensitivity as a pathophysiological mechanism in cutaneous lesions due to SARS-CoV-2

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To the Editors of the Pan African Medical Journal

A 17-year-old adolescent with no medical history; documented to have a mild SARS-CoV-2 infection (clinical symptoms and minimal peripheral ground-glass opacities in both lungs in chest CT); had chilblains-like lesions on the toes (Figure 1 A) and asymptomatic erythematopurpuric lesions of soles (Figure 1 B) on the fourth day of the onset of COVID-19 symptoms. He took vitamin C only. There were no thrombocytopenia, no hypercoagulability except a slight increase of inflammatory markers. Sars-cov-2 RT-PCR was negative. On the fifteenth day of the onset of symptoms, he developed mild itching and painless erythematous maculopapular lesions of heels (Figure 1 C) with targetoid aspect on the palms (Figure 1 D). There was no mucosal involvement. No recent episode of recurrent herpes or drugs intake were noted. Reported COVID-19 associated cutaneous manifestations are various. Some occur early as exanthem, urticaria, chickenpox like rash; mainly affecting the trunk [1]; while others appear later like chilblains and maculopapular lesions with acral distribution [2]. This suppose that there would be two types of lesions according to two different pathophysiological mechanisms: first and early one which would be linked to viremia and a second; late; related to immunological and inflammatory response during the disease.

Our patient had presented chilblains-like lesions and acral purpura concomitantly, followed few days later by maculopapular lesions with targetoid lesions reminiscent of erythema multiforme. Same presentations were reported: 02 cases with chilblains-like lesions evolving to erythemato-papular targetoid lesions [3]; maculopapular lesions in heels [4]. All these observations were seen in healthy young patients, with negative SARS-CoV-2 RT-PCR, appear late and would have a good prognosis. These findings suggest that acral lesions would be the clinical expression of type III and/or IV hypersensitivity targeting the small vessels of skin then responsible for endothelial activation, dermal and perivascular lymphoid infiltrate. Histological observations corroborate this hypothesis [2-6]. These suggestions require more investigation by means of SARS-CoV-2 serological tests, more relevant histology with immunohistochemistry and immunofluorescence and finally a serum assay of complement and immunological factors.

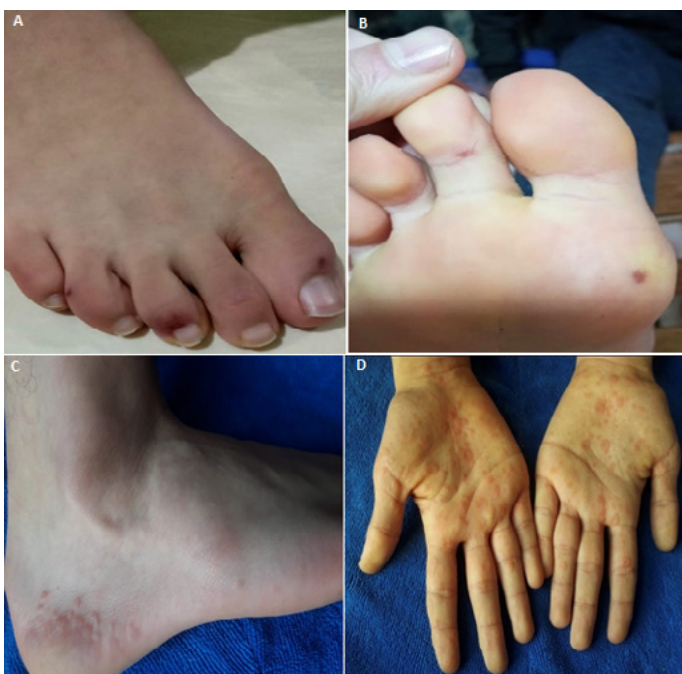

Figure 1: A) chilblains-like lesions on the toes; B) erythematopurpuric lesions of soles; C) erythematous maculopapular lesions of the heel; D) targetoid aspect on the palms

Competing interests

The authors declare no competing interests.

Authors' contributions

Mostafa Rafai, Jalal Elbenaye, Sana Sabry and Hicham Janah :study, conception and design, drafting of the manuscript and critical revision. All authors have read and agreed to the final version of this manuscript.

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