

BNT-162b1/clobetasol**S****Pernio and lack of efficacy: case report**

A 64-year-old man developed pernio following administration of second dose of BNT-162b1 COVID-19 vaccine. Additionally, he exhibited lack of efficacy while receiving clobetasol for pernio [*dosage and route not stated*].

The man presented to the emergency department with violaceous skin discoloration for 10 days, in January 2021. The skin discoloration had started on the left hallux and gradually spread to all toes on the bilateral feet. He had received the second dose of the BNT-162b1 [Pfizer BNT162b1 COVID-19 vaccine; mRNA SARSCoV-2 vaccine] vaccine, 3 days prior to onset of the left toe discoloration. He denied hot or cold exposure, pain, numbness and tingling. He denied history of pernio or other similar lesions. He also denied Raynaud's phenomenon, oral ulcers, photosensitivity, vascular disease, cardiac disease, autoimmune diseases, hypercoagulable state, cardiac procedure and symptoms of COVID-19. He had three negative COVID-19 PCR tests in the past two months prior to presentation. The testing was also negative at presentation. He denied any adverse reactions following the first dose of the vaccine. He had painless, dark erythematous to violaceous discoloration of the bilateral toes, associated with an intact bulla on the left hallux. Initial laboratory studies showed elevated C-reactive protein. The differential diagnosis included idiopathic pernio, COVID-19 infection, hypercoagulable state, vasculitis/vasculopathy, connective tissue disease or reaction to the vaccine. Laboratory workup including HIV, antineutrophil cytoplasmic antibody, antinuclear antibody, antiphospholipid antibodies, Hepatitis B, Hepatitis C, complements C3/C4/CH50, rheumatoid factor, and serum and urine protein electrophoresis were performed to rule out other aetiologies in the differential diagnosis. The key differentiating feature between COVID-19-associated pernio and idiopathic pernio was the lack of association with cold exposure. As the local weather was relatively mild, idiopathic pernio was unlikely. Daily temperatures averaged 9–20 °C in the weeks before and after the lesions appeared.

The man was in a stable condition and was discharged on clobetasol 0.05% ointment for treating the affected toes. A follow-up was planned in the outpatient dermatology clinic. At follow-up 15 days after initial presentation (28 days after vaccination), the clinical appearance of the toe discoloration was unchanged, suggesting lack of efficacy with clobetasol. His symptoms had exacerbated by cold temperatures and improved after rewarming and leg elevation. Laboratory workup was unrevealing. A punch biopsy of the left great toe revealed pathology suggestive of pernio. Immunohistochemistry (IHC) staining for SARS-CoV-2 of the tissue was found negative. COVID infection was still suspected. However, negative testing and lack of symptoms or contact with infected individuals ruled out COVID-19 association. Thus, the final diagnosis was pernio, temporally associated with the second dose of BNT-162b1 COVID-19 vaccine. He was advised to avoid cold exposure and use clobetasol as needed.