

Clinical Pearls

Subungual hematomas after mRNA Covid-19 vaccine administration

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In the fight against COVID-19, the largest vaccination campaign in history is currently underway. Since billions of doses of various vaccines are being applied, very rare side effects are expected to become evident.

Case Presentation

A 42-year-old migrant woman from Argentina presented with numbness, tingling and excruciating pain on palms and fingers, bilaterally. One day earlier, she had received the second dose of Pfizer–BioNTech COVID-19 vaccine and 3 hours afterwards noticed abrupt onset of prickling and generalized distal finger phalanx pain. Symptoms persisted unabated and 1 week later, she developed multiple large, polymorphic subungual haemorrhages in several fingers (Figure 1A–C). A thorough clinical evaluation ruled out any significant active cardiovascular and pulmonary abnormalities. General laboratory results were normal. A venous echodoppler of both upper extremities failed to reveal deep or superficial vein thrombosis. Determination of specific IgM and IgG against SARS-Cov-2 by an ELISA-immunoassay was negative. A 1-week course of 40 mg of prednisone was initiated with gradual relief in pain and numbness. Follow-up laboratory results, including full blood counting, fasting glycemia, A1c, ESR, blood film, clotting tests, anti-PF4 antibodies, immune complexes, CH50 levels, ANA and ANCA, were all normal, except for a fasting blood sugar of 125 mg/dl and a A1c level of 10%. Recovery was uneventful afterwards.

Discussion

Subungual haemorrhages and hematomas are collections of blood between the nail bed and plate.¹ Although trauma



Figure 1. Multiple polymorphous large subungual hematomas exhibiting red to black discoloration with roundish or irregular shapes, some with a peripheral fading edge, are evident on most fingernails, bilaterally (panels A–C).

is often the cause, they may also occur in various systemic illnesses or after medications that disrupt the nail bed blood vessels.^{1,2} Hematomas appear as large red to black nail roundish-shaped discolorations of homogeneous or variable colours, with peripheral fading, all clearly depicted in Figure 1.

Drug-induced nail disorders may result from toxicity to the matrix, nail bed, nail blood vessels or periungual tissues.^{1,2} As in our case, they typically affect fingernails, and rarely, toenails.^{1,2} Of note, findings often subside without drug discontinuation, and re-challenge is frequently negative.¹

Subungual hematomas are believed to be caused by toxic damage to the capillary walls, increased capillary fragility or the development of emboli within the terminal nail bed vasculature.^{1,2}

Different types of vasculitis induced by inactivated influenza, human papillomavirus, hepatitis A/B, rotavirus, and more recently, COVID-19 vaccinations, have been reported in the literature.^{3,4} A possible mechanism triggered by COVID-19 immunization would be small vessel damage, with deposition of immune complexes containing vaccine-related antigens, secondary to hyperactivation of autoreactive B/T cells due to cross-reactivity and molecular mimicry between viral and self-antigens.⁴

Cutaneous reactions, including itching, rash, hives and swelling, have recently been reported in >4% of those who received the second dose of mRNA COVID-19 vaccines.⁵ The spectrum of reported cutaneous reactions after mRNA vaccination include large local reactions, urticaria, angioedema and morbilliform reactions.⁵

Conclusions

Clinicians need to be aware that, in rare instances, COVID-19 vaccines can potentially trigger or aggravate cutaneous vasculitis and other inflammatory skin manifestations. We are not aware of previous instances of similar adverse effects associated with any of currently approved COVID-19 vaccines.

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Conflict of interest

None declared.

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