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Unusual contact dermatitis after SARS-CoV-2 vaccinations

Elisabeth Jungwirth | Romana Kupsa | Birger Kränke | Lorenzo Cerroni | Lukas Koch

Department of Dermatology, Medical University of Graz, Graz, Austria

Correspondence
Dr. Lukas Koch, Department of Dermatology, Medical University of Graz, Auenbruggerplatz 8, A-8036 Graz, Austria.
Email: lukas.koch@medunigraz.at

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Three years after the beginning of the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) pandemic, more than 10 billion vaccinations have been performed.[1] As a result, a broad spectrum of vaccination reactions has been reported, including a large number of local injection site reactions.[2] Unfortunately, the clinical presentation of these reactions can be misleading. We present two cases of unusual dermatitis at the site of, but not directly related to, SARS-CoV-2 vaccination.

CASE REPORT

Patient 1, a 25-year-old woman, noticed localized erythema and subsequent blister formation at the injection site, starting during the night after her first vaccination with Vaxzevria (AstraZeneca AB, Södertälje, Sweden). Although she did not experience systemic symptoms, she visited our outpatient clinic 2 days after the injection (Figure 1, top).

Patient 2, a 46-year-old woman, noted erythema and pruritus a few hours after her third vaccination with Spikevax (Moderna Biotech Spain SL, Madrid, Spain), followed by blister formation on the subsequent morning. On day 2 after the injection, she was referred to our outpatient clinic because of increased swelling and blistering without systemic symptoms (Figure 1, bottom).

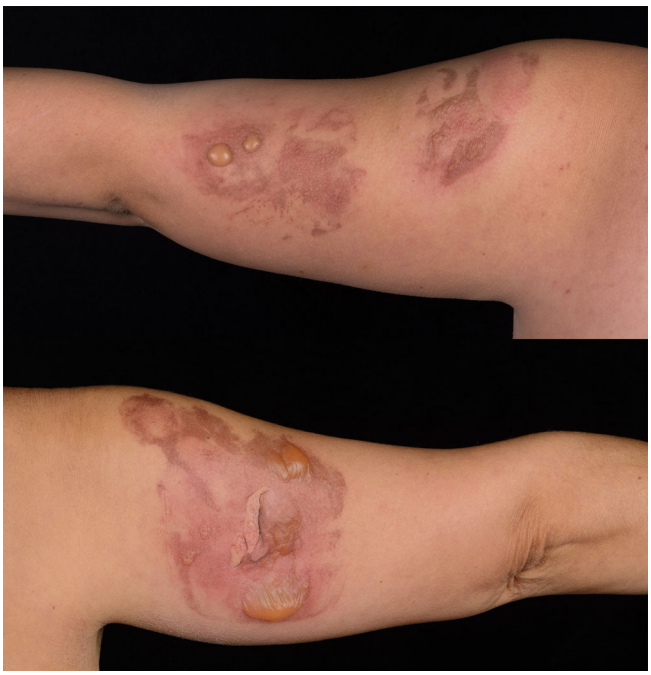

FIGURE 1 Blisters and erosions on well-demarcated erythema on the left arm of a 25-year-old woman (top) and the right arm of a 46-year-old woman (bottom)

TABLE 1 Clues for diagnosis of local reactions after vaccination

Diagnosis	Onset	EpI	SyS	LoS	Erythema plus	Clues
Directly related to the vaccination						
Common injection site reaction	1–2 days	−	−/+	Pain	Induration, swelling	(mild systemic symptoms)
Delayed large local reactions	7+ days	−	−	Pain	Induration, swelling	Normal CRP + leukocyte counts
Cellulitis	1–3 days	−	+	Pain	Induration, swelling	Elevated CRP + leukocyte counts, fatigue, chills, fever
Pseudolymphoma	Weeks to months	−	−	(Pain)	Subcutaneous nodule, plaque	
Not directly related to the vaccination, elicited by additional measures						
Frostbite	Hours	+	−	Itching (Pain)	Blisters Erosions	History of cooling Usually no induration (sharp borders)
Contact dermatitis, irritant	Hours to days	+	−	Burning Itching	Papules Vesicles	History of application Decrescendo reaction Sharp borders
Contact dermatitis, allergic	12–24 hours to days	+	−	Itching	Papules Vesicles	History of application Crescendo reaction Diffuse borders, spreading

Note: CRP = C-reactive protein; EpI = epidermal involvement; LoS = local symptoms; SyS = systemic symptoms.

Our unrelated patients received different vaccines, and the considerable epidermal component with blister formation ruled out a reaction to the vaccine itself. However, medical history finally revealed that both patients had applied ice packs directly on the skin for about half an hour to prevent painful injection reactions; therefore, they were diagnosed with second-degree frostbite.

DISCUSSION

Local reactions after vaccinations can be attributed to two reaction types: related and unrelated to the vaccine. Reactions related to the vaccine usually present without epidermal involvement and comprise common injection site reactions, delayed local reactions, cellulitis, and pseudolymphomas.[3] Delayed large local reactions have been described as a typical side effect for Spikevax,[4] but may also occur following the application of other vaccines. Reactions unrelated to the vaccine usually have epidermal involvement and include the reported dermatitis congelationis (frostbite) and contact dermatitis, either allergic, or irritant. Helpful clues to differentiate these local reactions are shown in Table 1.

Our two cases remind us that not every "contact" dermatitis is allergic or irritant (by chemicals or medications). The differentiation of dermatitis congelationis from classical contact dermatitis is based on the patient's history of cryotherapy, rapid onset, and bullae formation. The skin lesions in our patients healed completely after local treatment with octenidine dihydrochloride wraps and a betamethasone dipropionate cream, applied twice daily for 5 days.

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The patients in this article have given written informed consent for publication of their photographs.

CONFLICT OF INTEREST

The authors declare no conflict of interest concerning this article.

ORCID

Lukas Koch https://orcid.org/0000-0003-2091-5411

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