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vOka vaccine-associated disseminated varicella zoster

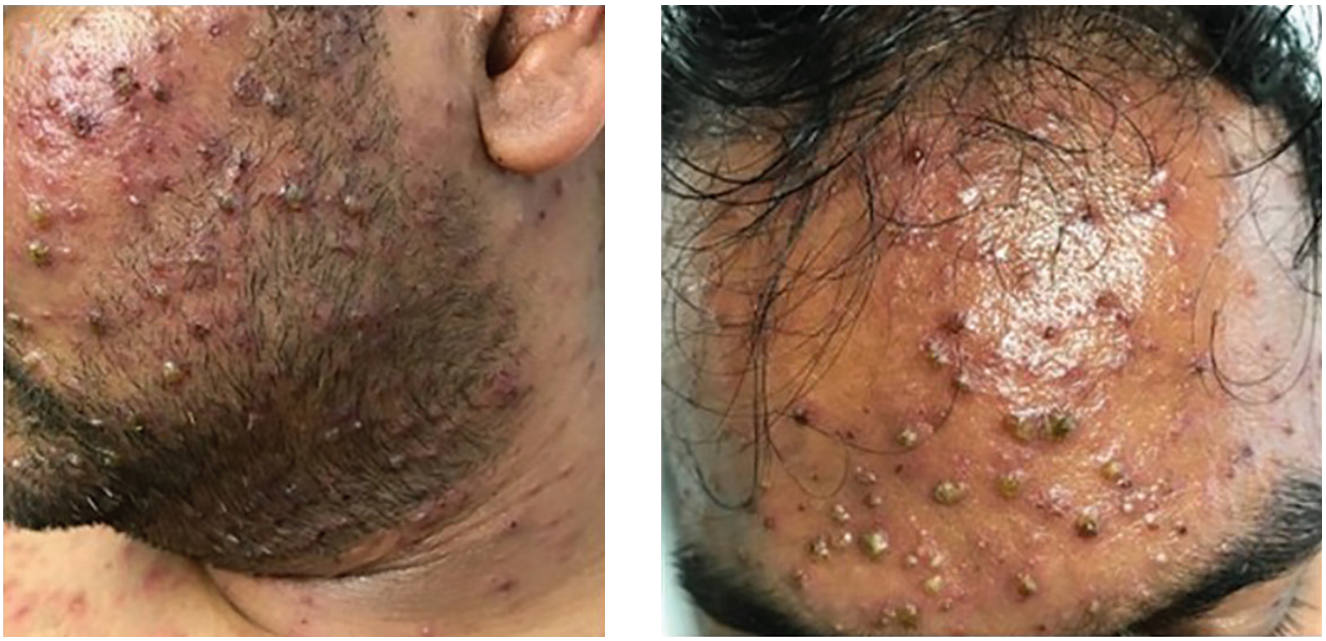

Figure 1. Diffuse vesicular lesions on the patient's face, forehead, and scalp at presentation.

A 34-year-old man presented to the emergency department with a 3-day history of rash, fever, diarrhea, and vomiting. He was being treated for seronegative rheumatoid arthritis with methotrexate 20 mg/week, prednisone 12 mg/day, and etanercept 50 mg/week. He said that 1 month prior he had received the live attenuated varicella vaccine (vOka) and that he had no previous history of varicella.

Physical examination revealed diffuse vesicular lesions, involving his entire torso, scalp, extremities, palms, soles, and hard palate (**Figure 1**). His temperature peaked at 41.1°C (105.9°F). Laboratory studies showed a hematocrit of 33% (reference range 39.5–50.2), thrombocytopenia with a platelet count of 51 × 10^9/L (141–377), an elevated aspartate aminotransferase of 185 U/L (15–46) an elevated alanine transaminase 234 U/L (< 50), and total bilirubin of 2.2 mg/dL (< 1.4).

Fluorescence resonance energy transfer polymerase chain reaction testing of fluid from an unroofed lesion identified vaccine-strain varicella zoster virus (Kay Radford, US Centers for Disease Control and Prevention, email, August 31, 2021). His skin lesions and laboratory abnormalities improved with intravenous acyclovir, though he was left with residual scarring. The improvements occurred over the course of about 7 days, with full healing requiring weeks.

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The differential diagnosis for diffuse vesicular lesions is broad, with most etiologies being immunologic conditions. However, associated infections include varicella, disseminated herpes simplex, eczema herpeticum, echovirus, coxsackievirus, and orthopoxviruses, including the mpox virus.[1]

Worldwide, more than 150 million doses of varicella vaccine have been distributed since its licensure in 1995.[2] Most adverse events after varicella vaccination are mild and consist of transient rashes, local reactions, or transient low-grade fever. Serious adverse events are infrequently reported (approximately 1 report per 100,000 doses from 2006 to 2020), and laboratory-confirmed cases of vaccine-associated varicella zoster, meningitis, and encephalitis have been rarely reported.[3]

Disseminated varicella zoster after vaccination with the live attenuated varicella vaccine is a serious and very rare complication, though it generally responds to antiviral therapy. However, over the past 25 years, 6 fatalities caused by vOka have been documented, all occurring in children or adults with immunodeficiency.[2]

The 2022 American College of Rheumatology guidelines for vaccination in patients with rheumatic and musculoskeletal diseases provide guidance on holding immunosuppressive medications and delaying vaccine.[4] The recommendations in our patient's case suggest that the methotrexate and prednisone should have been held 4 weeks before and after vaccination, and that the etanercept dose should have been deferred 1 week before and for 4 weeks after vaccination.[4] A report from the Infectious Disease Society of America highlights the importance of avoiding live attenuated varicella vaccine in highly immunocompromised patients when possible and of pausing the use of immunosuppressive therapies in patients who merit such vaccinations.[5]

DISCLOSURES

The authors report no relevant financial relationships which, in the context of their contributions, could be perceived as a potential conflict of interest.

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