

BRIEF ARTICLE

A Case of Pityriasis Rosea Following Monkeypox Vaccination

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ABSTRACT

Introduction: Pityriasis rosea (PR) is a well-known but uncommon, benign papulosquamous skin condition that often occurs after viral infections or vaccinations. The most commonly implicated vaccine is smallpox. Monkeypox (MPX), a related virus to smallpox within the orthopox family, has recently grown in public health concern. We present here a case of PR following MPX vaccination in an African American man.

Case Report: A 32-year-old African American man presented for evaluation of a one-month history of rash that first appeared as an isolated itching spot on his right mid-back, followed by papular eruptions on his trunk with extremity sparing. He denied recent illnesses, medication use including NSAIDs, or history of similar rash. He did report receiving his first MPX dose about one week prior to rash onset. Pityriasis rosea was diagnosed based on clinical presentation and suspected secondary to the patient's MPX vaccine course.

Conclusion: There are currently two available vaccines for MPX protection in the United States, both of which are vaccinia-based and developmentally related to the smallpox vaccine. Given the known association of smallpox and PR, PR reactions following MPX vaccination may occur.

INTRODUCTION

Pityriasis rosea (PR) is a well-known but uncommon, benign papulosquamous skin condition that often affects adolescents and young adults with an initial herald patch followed by eruptions of additional lesions that often follow skin lines.²

While the exact cause is unknown, PR has been linked to immune activation following infection or activation of Human Herpes Viruses 6 and 7, as well as after vaccines, most notably smallpox.^{1,2} Monkeypox (MPX) is related to smallpox; both in the orthopox family. MPX has been steadily recognized as

a re-emerging public health threat, and the first cases in the United States have been attributed to zoonotic transmission from imported small animals from Ghana.³ Increasingly, MPX has spread rapidly among young adults and the average age at time of infection is now 21 years.⁴ Accordingly, recent vaccine programming has targeted young adults who may be in regular close contact with infected individuals. Here we present a case of PR in a man after MPX vaccination.

CASE REPORT

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A 32-year-old African American man presented to our Dermatology clinic for evaluation of a pruritic rash. He stated that the rash first appeared one month ago as an isolated itching spot on his right mid-back, followed by several more pruritic spots and axillary burning when he applied deodorant. He had not yet tried any treatments to the affected area at the time of his evaluation. He denied any recent illnesses, new medications, personal or family history of psoriasis or eczema. He denied any personal history of asthma, allergies, taking prescribed or over the counter medications. He reported working in the healthcare field and had received his initial vaccine for MPX shortly prior to his initial eruption. He also reported that he received his second vaccine in the series only a few days prior to presenting in clinic.

On physical exam, a single ovoid pink plaque with scaling was observed along skin lines at the right mid-back. (**Figure 1**). In addition, multiple hyperpigmented patches extended from the midline to lateral back along skin lines. The bilateral axillae contained oval erythematous plaques with scale following skin lines and sparing the axillary vault (**Figure 2**). Of note, the patient's bilateral palmar and plantar surfaces were clear of lesions, and he had normal nail findings (**Figure 3**).



Figure 1. A single herald patch on the right midback along with hyperpigmented patches extending from midline back following skin lines.



Figure 2. Oval erythematous plaques in the axilla sparing the axillary vault.



Figure 3. Absent palmar rash.

Pityriasis rosea was diagnosed based on clinical presentation, suspected secondary to the patient's MPX vaccine course. Biopsies were not performed given the classic distribution of the lesions following Langer lines and the predecessor herald patch on the patient's mid-back.

The patient was started on topical Triamcinolone 0.1% ointment TID to lesions for management of his pruritus as well as a 5-day course of oral Azithromycin 250mg/day. In addition, the benign course and self-resolving nature of PR was discussed at length.

DISCUSSION

Monkeypox vaccination has not yet been reported in association with PR, though it should be included on the differential of

patients with PR. This patient's lesions were not biopsied and therefore we are unable to differentiate PR versus PR-like eruption. However, given the clear temporal association with a suspected causal agent, the MPX vaccine, as well as the classic presentation of the herald patch followed by the subsequent truncal eruption on the patient's skin, PR was able to be diagnosed clinically.

PR is uncommon but well-reported in association with both viral infections and vaccinations.¹ Though the mechanism by which PR emerges following vaccination remains poorly understood, several mechanisms have been postulated, including immunologic T cell "distraction" which then permits reactivation of Human Herpes Viruses 6 and/or 7; a hypersensitivity response to the vaccine itself, or some form of molecular mimicry of viral particles yielding T cell over-activation.⁵

Among vaccine-associated PR, the smallpox vaccine appears to be particularly implicated.⁵ Since global coordinated efforts to eradicate smallpox have ended there is a growing number of individuals without vaccine-stimulated immunity. Previously, immunization against smallpox conferred some level of protection against other orthopox viruses such as MPX.³ In fact, the two vaccines available for use in the United States, the ACAM2000 and JYNNEOS, are both modified Vaccinia virus-derived vaccines that were initially developed in response to smallpox.⁶ More specifically, ACAM2000 was developed directly during the smallpox global vaccine campaign, while JYNNEOS is the replication-incompetent, later generation of the Modified Vaccinia virus Ankara (MVA) vaccine.^{6,7} MVA itself was developed as a potential response to fears of weaponization of smallpox and bioterrorism events.⁷ Unsurprisingly, there is

evidence of immunity against MPX among individuals previously immunized against smallpox.⁸

CONCLUSION

Monkeypox is closely related to smallpox and the vaccines used for MPX are developmentally related to smallpox. Therefore, there may be a similar propensity to PR in vaccinated patients. Patients who receive the MPX vaccine and who subsequently develop PR, or a PR-like eruption should be counseled that their lesions are benign and generally self-limited. Adjuvant therapies may also be selected to help patients manage the associated pruritus.

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