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Acute psoriasis exacerbation by recombinant zoster vaccine: a case report

Moteb Khalaf Alotaibi[1] ✉

[1]*Department of Dermatology, Unaizah College of Medicine and Medical Sciences, Qassim University, Unaizah, Saudi Arabia.*

Abstract

Psoriasis is a common chronic inflammatory skin disorder that primarily affects the skin, nails, and joints. Beyond its cutaneous manifestations, psoriasis is associated with several systemic comorbidities. Various factors can trigger or exacerbate psoriasis, including stress, infections, medications, and vaccinations. This article reports what is, to the best of the author's knowledge, the first known case of acute exacerbation of plaque-type psoriasis, presenting as guttate psoriasis (GP), following herpes zoster vaccination. A 52-year-old male with a history of longstanding plaque-type psoriasis developed a sudden flare of GP lesions 2 weeks after receiving the recombinant herpes zoster vaccine. Physicians should be vigilant for potential triggers of psoriasis exacerbation, with the recombinant herpes zoster vaccine being among them.

Keywords: guttate, herpes zoster, immunization, psoriasis, vaccine

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Introduction

Psoriasis is a prevalent and persistent inflammatory skin condition that primarily affects the skin, nails, and joints. It is associated with various systemic comorbidities, including psychological, metabolic, musculoskeletal, and cardiovascular issues, in addition to its impact on the skin (1, 2). The global prevalence of psoriasis in adults varies significantly, ranging from 0.4% in Asian countries to 8.5% in Norway (3).

The understanding of psoriasis pathogenesis is rapidly advancing, and it can be succinctly described as a T-helper (Th) cell-mediated inflammatory skin disease, whereby Th1, Th17, and Th22 subpopulations play a crucial role in the disease's progression and persistence (3). The activation of keratinocytes occurs through a positive feedback loop involving immune cells, proinflammatory cytokines, chemokines, and antimicrobial peptides (1).

Guttate psoriasis (GP) is a subtype of psoriasis with unique epidemiological, clinical, and histological characteristics (4). GP is more common in pediatric and adolescent populations than in adults (4). It typically presents as small round droplets (gutta) with a diameter of 2 to 10 mm. These droplets are uniformly red and covered in scales, and they can be flat (macules) or raised (papules). Infections, such as streptococcal upper respiratory tract infections and viral infections, are known to play a causative role in the development of GP (4). Several precipitating factors can exacerbate the condition, including stress, infections, medications, and vaccinations (5).

The recombinant zoster vaccine (RZV) is an adjuvanted recombinant subunit vaccine against herpes zoster, containing varicella-zoster virus glycoprotein E and the AS01B adjuvant system (Shingrix®, GlaxoSmithKline Biologicals, Rixensart, Belgium) (6). This is, to our knowledge, the first documented case of a sudden exacerbation of plaque-type psoriasis, specifically manifesting as generalized GP, following herpes zoster immunization.

Case report

A 52-year-old male patient with a history of plaque-type psoriasis lasting over 10 years, affecting 10% of his body surface area (BSA), primarily on the knees and elbows, and well-controlled with topical corticosteroids and emollients, presented with an acute widespread skin rash 2 weeks after receiving the first dose of the Shingrix® vaccine as part of a routine procedure. The patient had no signs or symptoms of arthritis, no history of metabolic diseases, and no known aggravating factors or changes in his psoriasis management.

Upon clinical examination, the patient exhibited well-defined, monomorphic, scaly, and widespread erythematous papules (Fig. 1A–C). The mucous membranes and nails were unaffected. Based on the classic presentation and normal results from basic laboratory investigations, a diagnosis of acute aggravation of plaque-type psoriasis, manifesting as GP, was made. The patient was initiated on cyclosporin at a dose of 5 milligrams per kilogram per day. Following a positive response, a plan was established to gradually reduce the cyclosporin dosage while closely monitoring for any signs of disease recurrence.

Discussion

According to the Medical Board of the National Psoriasis Foundation (NPF), the recombinant zoster vaccine is recommended for all patients with psoriasis and psoriatic arthritis over the age of 50, as well as for those under 50 receiving tofacitinib, systemic steroids, or combination systemic treatment (6). While new cases of psoriasis or exacerbations have been reported following various vaccines (7), including influenza, rubella, tetanus, Bacillus Calmette-Guérin (BCG), yellow fever (8), tetanus-diphtheria, and several COVID-19 vaccines (9-12), there is no evidence to indicate that the herpes zoster vaccine adversely affects psoriasis activity.

Among the adverse effects recorded, the U.S. Food and Drug

✉ Corresponding author: mkatieby@qu.edu.sa

Administration did not identify any instances of generalized skin rash or psoriasis exacerbation in the reports on the vaccine (13).

The mechanism behind vaccine-induced psoriasis exacerbation remains incompletely understood. However, previous studies have shown that influenza vaccination can significantly increase interleukin 6 levels and enhance the Th1 and Th17 immune responses (14). Given that these immunological changes are similar to the cutaneous alterations characteristic of psoriasis, they may explain how psoriasis can become more severe following vaccination (14).

Considering that this study is a retrospective case report, it is possible that changes in medication adherence, along with other exacerbating factors, may have contributed to the flare-ups. Despite these limitations, the observations suggest a potential connection between the zoster vaccine and psoriasis exacerbation. Clinicians should be aware of this possible adverse effect and closely monitor the condition's progression in their patients.

Conclusions

To summarize, although the occurrence of acute GP exacerbation due to recombinant zoster vaccination is rare, it remains a possibility. Healthcare professionals should be aware of this potential adverse reaction and closely monitor patients with a history of psoriasis. Further research is needed to gain a more comprehensive understanding of the underlying mechanisms and to develop proactive measures.

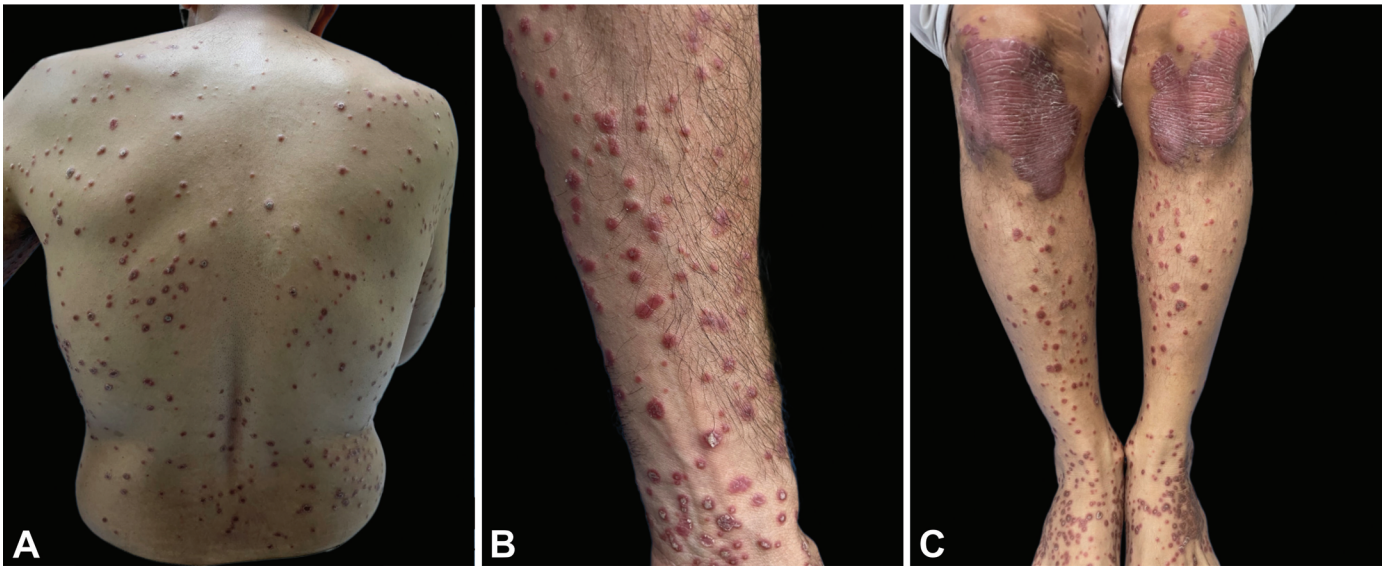

Figure 1 | Erythematosquamous lesions in various regions: A) small erythematosquamous lesions scattered across the back; B) similar lesions observed on the forearm; C) larger erythematosquamous plaques prominently affecting the knees, with smaller lesions on the surrounding areas.

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