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CASE REPORT

Psoriatic eruption following immunotherapy with pembrolizumab: a case report

Manifestação psoriásica secundária à imunoterapia com pembrolizumab: relato de caso

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Abstract

Programmed death-1 inhibitor-induced psoriasis is an uncommon and challenging adverse event, especially when severe and in patients without a dermatological history. We report the case of a 67-year-old man, phototype 2, agronomist, diabetic, receiving pembrolizumab for the treatment of renal cancer, who, after the fifth dose, developed progressive pruritic skin lesions characterized by disseminated erythematous-scaling plaques and papules, with a psoriasis area and severity index of 36. Biopsies revealed chronic psoriasiform dermatitis with eosinophilia, compatible with an immune-mediated reaction. He had previously used moisturizers, oral bilastine, and topical corticosteroids, without improvement. Secukinumab was then introduced in an induction regimen followed by monthly maintenance, with marked improvement after the 2nd monthly dose and sustained response for 6 months. This case highlights the importance of early recognition of cutaneous manifestations associated with immunotherapy and demonstrates that selective interleukin-17A blockade can control induced psoriasis without compromising the continuity of oncologic treatment.

Keywords: Psoriasis. Immunotherapy. Drug-related side effects and adverse reactions. Immune checkpoint inhibitors. Renal neoplasms. Pembrolizumab.

Resumo

A psoríase induzida por bloqueadores de PD-1 é evento adverso incomum e desafiador, especialmente quando grave e em pacientes sem histórico dermatológico. Relatamos o caso de homem, 67 anos, fototipo 2, engenheiro agrônomo, diabético, com cancro renal sob terapêutica com Pembrolizumabe, que após a quinta dose desenvolveu lesões cutâneas pruriginosas progressivas, caracterizadas por placas e pápulas eritemato-descamativas disseminadas, com PASI 36. As biópsias evidenciaram dermatite crônica psoriasiforme com eosinofilia, compatível com reação imunomediada. Tinha aplicado hidratantes, e utilizado bilastina oral e corticoides tópicos, sem melhoria. Optou-se, então, pela introdução de Secucinumab em esquema de indução seguido de manutenção mensal, com melhora expressiva após a segunda dose mensal e resposta sustentada por seis meses. O caso reforça a importância do reconhecimento precoce das manifestações cutâneas associadas à imunoterapia e demonstra que o bloqueio seletivo da IL-17A pode controlar a psoríase induzida por inibidores do check-point imunológico sem comprometer a continuidade do tratamento oncológico.

Palavras-chave: Psoríase. Imunoterapia. Efeitos colaterais e reações adversas a medicamentos. Inibidores de checkpoint imunológico. Neoplasias renais. Pembrolizumab.

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Introduction

Therapy with immunobiological agents has emerged as an innovative strategy in cancer treatment. It activates the immune system against tumor cells and increases patient survival.[1] Among immunotherapeutic strategies, immune checkpoint blockade has demonstrated notable benefits in treating a variety of cancer types. In this context, pembrolizumab has represented a significant advance in the treatment of malignant neoplasms, acting as a humanized monoclonal antibody that blocks the interaction between programmed death-1 (PD-1) and its ligands, promoting sustained activation of the T lymphocyte–mediated immune response and increasing the recognition and destruction of tumor cells.[2] Its use leads to non-specific stimulation of the immune system, which may trigger immune-mediated adverse effects, with the skin and its appendages being the most commonly affected sites. These manifestations generally arise within the first 6 weeks after the initial administration of the immunotherapeutic agent.[3]

The early documentation of psoriasis as an adverse reaction to pembrolizumab is of great relevance not only clinically but also scientifically, since immunomodulatory drugs, particularly immune checkpoint inhibitors such as anti-PD-1 agents, may trigger or exacerbate inflammatory skin diseases through non-specific immune activation and disruption of self-tolerance.[4] Such cases contribute to expanding knowledge about the safety profile of these therapies, assisting in the early identification of immune-mediated adverse events and guiding decision-making regarding the maintenance, suspension, or adjustment of oncologic treatment. This case report provides a better understanding of pembrolizumab immunotherapy and contributes to promoting greater safety and quality of care during the dermatological management of these patients.

We report the case of a patient who developed a severe adverse cutaneous reaction following the use of pembrolizumab for the treatment of renal neoplasia.

Case report

Male patient, 67-years-old, agronomist, upper middle class, phototype 2, diabetic, with no history of dermatological diseases, undergoing immunotherapy with pembrolizumab for renal cancer. After the fifth dose (every 21 days), he developed pruritic skin lesions initially on the upper limbs that progressed to the chest and lower limbs. Treatment with oral bilastine, topical corticosteroid, and moisturizer did not produce any effect. Regarding family history, he denied a history of cancer or dermatological diseases.

At the current visit, on August 28, 2025, disseminated lesions consisting of erythematous-scaling plaques and papules were observed (Fig. 1), compatible with psoriasis triggered by an adverse effect of pembrolizumab. Histopathology of biopsies of two lesions identified a chronic psoriasiform dermatitis with eosinophilia, suggesting a hypersensitivity or drug-induced reaction.

Due to disseminated and severe psoriasis, with a score of 36 on the psoriasis area and severity index (PASI), secukinumab was initiated after laboratory tests, which revealed: hemoglobin: 8.9 g/dL; leukocytes: 12,300/mm^3; eosinophils: 15%; lymphocytes: 10%; creatinine: 1.7 mg/dL; uric acid: 12 mg/dL. Other laboratory tests (liver function; renal function; lactate dehydrogenase; CA 19-9; purified protein derivative) and imaging examination (chest X-ray) showed no abnormalities.

Secukinumab was initiated at a dose of 300 mg by subcutaneous injection at weeks 0, 1, 2, 3, and 4, followed by monthly maintenance administration for 4 months. After the 2nd monthly dose of secukinumab, on November 18, 2025, a marked improvement in the dermatological lesions was observed, sustained after 6 months of follow-up (Fig. 2). At present, the patient remains on secukinumab therapy, with no active skin lesions, although the dosing interval has been extended to every 45 days.

There were a few challenges in handling the case. Based on the report of the onset of skin lesions after the use of pembrolizumab and the knowledge that psoriasiform reactions may be triggered by this drug, the clinical hypothesis was raised and confirmed by the anatomopathological examination. The acquisition of the immunobiological was accepted by the Unified Health System (*Sistema Único de Saúde*) relatively quick. The patient's complete clinical course is presented in chronological order in Fig. 3.

Discussion

Pembrolizumab is a humanized immunoglobulin G-4 monoclonal antibody that blocks the PD-1 receptor, promoting activation of the antitumor immune response. Immunobiological agents, such as pembrolizumab, act as immune checkpoint inhibitors by blocking inhibitory regulatory pathways that physiologically limit T lymphocyte activation to preserve self-tolerance and prevent excessive tissue damage. Tumors exploit this pathway

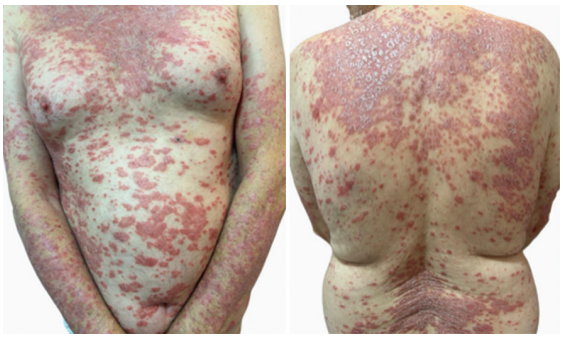

Figure 1. Male patient presenting disseminated erythematous-scaling plaques and papules in August 2025, secondary to immunotherapy with pembrolizumab for renal cancer.

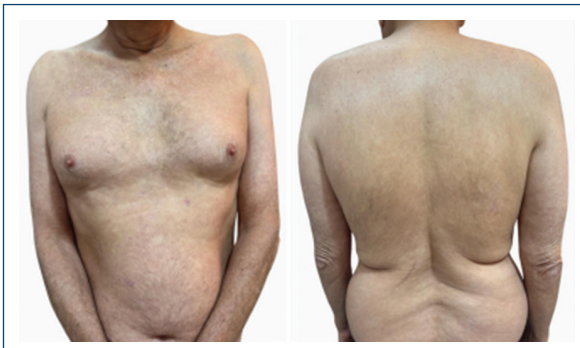

Figure 2. Patient with significant improvement of the lesions in February 2026 after the 2nd monthly dose of secukinumab.

by overexpressing programmed death-ligand 1 (PD-L1), inducing a state of functional "exhaustion" of infiltrating T lymphocytes. The blockade of these checkpoints through monoclonal antibodies results in increased cytotoxic activity and restoration of T lymphocyte effector function in the tumor microenvironment.[5]

In this context, pembrolizumab specifically blocks PD-1, preventing its interaction with PD-L1 and PD-L2. This blockade demonstrates greater efficacy in tumors with high mutational burden, high PD-L1 expression, or deficiency in the mismatch repair system, consolidating it as one of the main agents of modern immunotherapy.[6] Although highly effective in several neoplasms (melanoma, lung cancer, urothelial carcinoma, among others), its mechanism of action is associated with a characteristic spectrum of immune-related adverse events that may affect multiple organs and systems.

Immune-mediated adverse events related to pembrolizumab, through the PD-1/PD-L1 axis, involve alterations in the regulation of T-cell homeostasis, with activation and expansion of CD8+ cytotoxic T-cell activity directed toward different organs and tissues.[7] Blocking the inhibitory signal of these cells may affect the integumentary system by exacerbating a subclinical autoimmune condition or by triggering a new inflammatory condition.[8] Psoriatic manifestations, as in the patient reported here, are among the frequent dermatological adverse effects.[9]

Psoriasis pathogenesis induced by pembrolizumab is associated with hyperactivation of the interleukin (IL)-23/IL-17 axis following PD-1 pathway blockade, which disrupts T-cell homeostasis. Unlike the idiopathic form, this immune-related reaction may present characteristics of hypersensitivity, justifying the tissue and peripheral eosinophilia identified in the patient.[10] The severity of the condition, with a PASI of 36, required an intervention capable of interrupting the cutaneous inflammatory cascade without compromising antitumor surveillance against renal cancer. Therefore, management focuses on neutralizing specific cytokines to ensure dermatological control and the continuity of immunotherapy.

Unlike common reactions such as pruritus and exanthems, induced psoriasis is rarely reported and requires precise management. In this context, the use of secukinumab is strategic, as its selective inhibition of IL-17A does not interfere with the effector mechanisms of pembrolizumab against renal neoplasia. This specificity ensures immunological safety and rapid PASI remission, allowing the continuation of oncologic treatment without compromising patient outcomes, as reinforced by current literature indicating that such blockade is safe.[11]

Secukinumab is a recombinant human anti–IL-17A monoclonal antibody approved by the U.S. Food and Drug Administration and used as a biological therapy for the treatment of moderate to severe plaque psoriasis.[12] Secukinumab binds specifically to the proinflammatory cytokine IL-17A and blocks its interaction with the IL-17 receptor, inhibiting the release of cytokines and chemokines involved in the inflammatory process.[13]

According to one study, the use of secukinumab at a dose of 300 mg, administered in an early induction regimen or in a monthly schedule, led to a significant improvement in psoriasis compared with placebo. At week 12, patients treated early and monthly with the drug achieved higher improvement rates than placebo

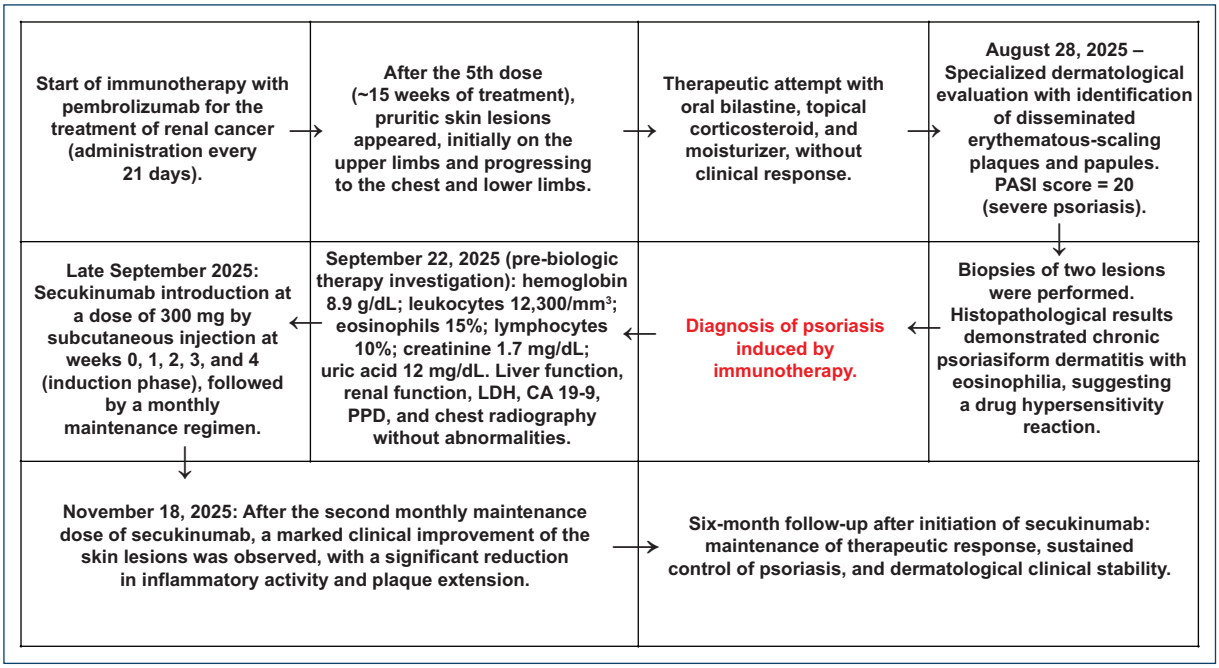

Figure 3. Timeline of the patient's clinical history.

for PASI 75 (54.5% and 42.0% versus 1.5%; $p < 0.001$ for both) and PASI 90 (31.8% and 17.4% versus 1.5%, respectively; $p < 0.001$ for both).[14] A similar response occurred in the case in a report that passed PASI 90. Another study demonstrated that adults with moderate to severe plaque psoriasis treated with secukinumab or standard therapy showed rapid and sustained improvement in skin scaling and erythema.[15] The same outcome was observed in the patient reported here. The use of secukinumab in the early stages of the disease may be a relevant strategy, as its early introduction as the main therapy has demonstrated better clinical outcomes and greater efficacy in psoriasis control.

Conclusion

Early recognition of immune-mediated cutaneous manifestations and histopathological confirmation were essential for the appropriate therapeutic management of this case. Given the lack of response to topical treatment and the high severity (PASI 36), the introduction of secukinumab proved to be an effective and safe strategy, promoting a rapid and sustained clinical response without compromising the course of oncologic treatment. This case reinforces that the increasing use of immunotherapies requires dermatologists and oncologists to include in their clinical practice the prompt recognition of their adverse effects and appropriate therapeutic intervention, improving the patient's quality of life as well as the adequacy of immunotherapeutic management for the treatment of neoplasia.

This case was selected because it highlights psoriasis as an adverse reaction to pembrolizumab, which, although uncommon, may occur in a severe form even in patients without a previous dermatological history and after multiple cycles of immunotherapy.

Funding

None.

Conflicts of interest

None.

Ethical considerations

Protection of human subjects and animals. The authors declare that no experiments on humans or animals were performed for this research.

Confidentiality, informed consent, and ethical approval. The authors have followed their institution's

confidentiality protocols, obtained informed consent from all patients, and secured approval from the Ethics Committee. SAGER guidelines have been followed as applicable to the nature of the study.

Declaration on the use of artificial intelligence. The authors declare that no generative artificial intelligence was used in the writing or creation of the content of this manuscript.

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