Acta Scientific MEDICAL SCIENCES (ISSN: 2582-0931)

Volume 10 Issue 9 September 2026

Case Report

Early-Onset Immune-Mediated Dermatitis Associated with Pembrolizumab: A Case Report

Dr. Iara Izquierdo Mielich, Dr. Janeth Lara Alcántara*, Johanna Ayeray Costa, Facundo Salazar Molina, Fernando Solarz, Florencia Ovejero, Agustina Potente, M Paula Pinto and Patricio Servienti

Oncology Department, Clinic, Dr. Teodoro Álvarez General Hospital, Buenos Aires, Argentina

***Corresponding Author:** Dr. Janeth Lara Alcántara, Oncology Department, Clinic, Dr. Teodoro Álvarez General Hospital, Buenos Aires, Argentina.

Received: June 01, 2026

Published: September 16, 2026

DOI: 10.31080/ASMS.2026.10.2286

Abstract

Immunotherapy based on immune checkpoint inhibitors has transformed the therapeutic approach to multiple neoplasms by enhancing the antitumor immune response by activating T lymphocytes. The disinhibition of these regulatory pathways are associated with a distinctive profile of inflammatory toxicities, termed immune-mediated adverse events, secondary to exacerbated immune activation and loss of peripheral tolerance. These events can involve multiple organs and systems, with the skin being one of the most frequently affected.

Cutaneous manifestations usually present early and, although in most cases correspond to low-grade events, they can evolve into severe forms that require early recognition and a timely therapeutic approach. In this context, we present a case of early-onset immune-mediated dermatitis associated with the use of a PD-1 inhibitor.

Objective: To report a case of pembrolizumab-induced grade 3 immune-mediated dermatitis in a patient with advanced cervical cancer and to analyze its clinical presentation, diagnostic approach, and treatment according to current guidelines.

Material and Methods: We report the clinical case of a patient with advanced cervical cancer (CC) who developed early-onset immune-mediated dermatitis associated with treatment with pembrolizumab. Clinical data were obtained by reviewing the clinical history, including demographic characteristics, therapeutic scheme, time of onset of the skin condition, complementary studies, treatment instituted and evolution.

Clinical evaluation included dermatological examination and laboratory studies. Microbiological and serological studies were performed to rule out infectious etiologies, as well as skin biopsy for histopathological analysis. The severity of the adverse event was classified according to the CTCAE criteria, and therapeutic management was carried out according to the current recommendations for adverse events immunorelated (irAE). Informed consent was obtained for the publication of the case.

Results: 15 days after starting pembrolizumab, the patient presented with generalized erythematous and pruritic maculopapular rash with fever. The studies ruled out infectious etiology and skin biopsy was compatible with drug toxicity. It was interpreted as grade 3 (G3) immune-mediated dermatitis, immunotherapy was discontinued, and intravenous corticosteroid therapy was initiated, with complete resolution of the condition at 48 hours.

Conclusion: Immune-mediated dermatitis represents a common and potentially serious adverse event associated with immunotherapy. Its early recognition and timely management, in accordance with current guidelines, allow for rapid clinical resolution and contribute to optimizing the care and safety of cancer patients.

Keywords: Immunotherapy; Immune-Mediated Dermatitis, Immune-Related Toxicity

Introduction

Immunotherapy based on immune checkpoint inhibitors (ICIs) has transformed the therapeutic approach to multiple neoplasms by enhancing the antitumor immune response through the activation of T cells. The disinhibition of these regulatory pathways is associated with a different profile of inflammatory toxicities, called immune-related adverse events (irAEs), secondary to an immune activation exacerbated by the loss of peripheral tolerance. These events can involve multiple organs and systems, with the skin being one of the most frequently affected.

Cutaneous manifestations usually present early and, although in most cases they correspond to low-grade events, they can evolve towards severe forms that require early recognition and timely therapeutic approach. In this context, we present a case of early-onset immune-mediated dermatitis associated with the use of a PD-1 inhibitor.

Case Report

A 58-year-old woman diagnosed with metastatic cervical cancer due to lymph node and lung involvement, with no relevant personal history. First-line treatment was initiated with carboplatin (370 mg), paclitaxel (245 mg), bevacizumab (630 mg), and pembrolizumab (200 mg). 15 days after the first treatment cycle, she presented a fever associated with generalized erythematous and pruritic macular rash, so she consulted the emergency department.

Physical examination revealed rounded, erythematous-purplish, pruritic, glass-pressure negative macules, distributed in a generalized manner respecting the facial region. An axillary temperature of 38°C was found with no obvious infectious focus.

Initial laboratory studies showed grade 3 neutropenia (leukocytes 1600/µL, neutrophils 688/µL) and grade 3 anemia (hemoglobin 7.5 g/dL, hematocrit 23%).

The patient was hospitalized in the Medical Clinic service. In the initial evaluation, pharmacoderma, viral infection, erythema multiforme, vasculitis, and secondary syphilis were considered as differential diagnoses. Blood cultures and urine cultures were negative, as were the requested viral serologies.

A biopsy of a skin lesion on the right forearm was performed. The histopathological study showed a mild perivascular lymphocyte inflammatory infiltrate in the dermis, compatible with skin reaction to drugs.

Based on the clinical picture, histopathological findings, and therapeutic context, the event was interpreted as grade 3 immune-mediated dermatitis secondary to pembrolizumab. Given the extensive skin involvement, the presence of fever and concomitant neutropenia, systemic intravenous corticosteroid therapy (prednisolone 1 mg/kg), associated with diphenhydramine and emollients, was indicated.

48 hours after the start of intravenous corticosteroid therapy, the patient presented a favorable evolution, with marked clinical improvement and resolution of skin lesions.

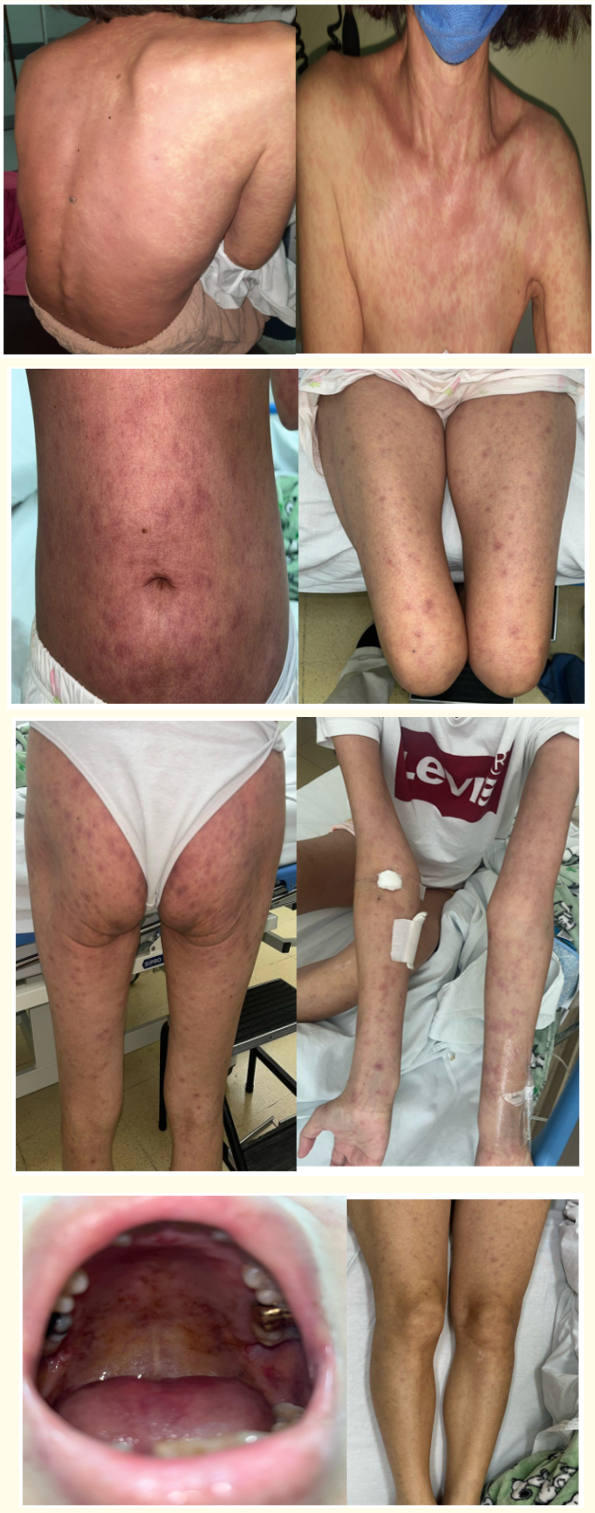
Material and Methods

We present a descriptive clinical case report of a patient with advanced cervical cancer who developed early-onset immune-mediated dermatitis associated with treatment with pembrolizumab. Clinical data were obtained by reviewing the clinical history, including demographic characteristics, therapeutic scheme, time of onset of the skin condition, complementary studies, treatment instituted and evolution.

Clinical evaluation included dermatological examination and laboratory studies. Microbiological and serological studies were performed to rule out infectious etiologies, as well as skin biopsy for histopathological analysis. The severity of the adverse event was classified according to the criteria of the Common Terminology Criteria for Adverse Events (CTCAE), and therapeutic management was carried out according to the current recommendations for immune-mediated adverse events. Informed consent was obtained for the publication of the case.

Discussion

Immunotherapy with immune checkpoint inhibitors (ICIs) has transformed the treatment of multiple neoplasms by enhancing the anti-tumor immune response through the activation of T cells. This effect is achieved through the blockade of negative regulatory pathways of the immune system, primarily cytotoxic T cell antigen 4 (CTLA-4) and programmed death receptor axis 1 (PD-1)/ programmed death ligand 1 (PD-L1).



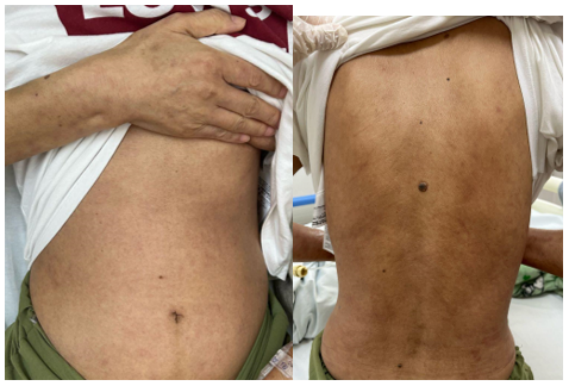


Figure 1

Immunological checkpoints: Ribas A. N Engl J Med 2012;366:2517.

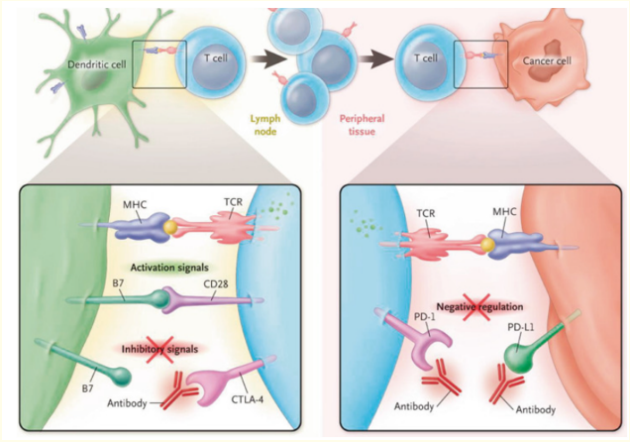


Figure 2

Anti CTLA-4	Anti PD-1	Anti PD-L1
Ipilimumab	Nivolumab	Avelumab
Tremelimumab	Pembrolizumab	Atezolizumab
	Cemeplimab	Durvalumab
	Dostarlimab	

Table 2

Mecanismo de la terapia del bloqueo de puntos de control inmune: (Adapted by permission from Macmillan Publishers Ltd: [Nature Medicine] (June., *et al*. Is autoimmunity the Achille's heel of cancer immunotherapy, copyright 2017) [2].

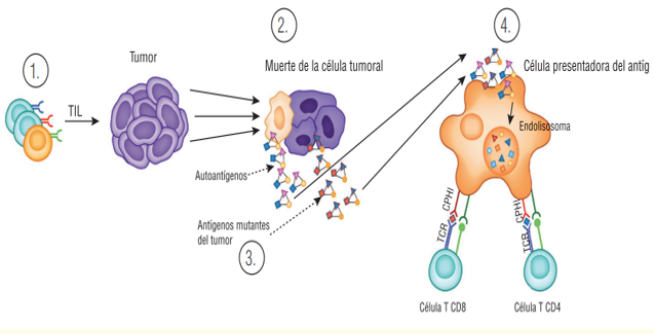


Figure 3

Activated tumour-infiltrating lymphocytes (TILs) attack the tumour [1], but can also cause damage to nearby normal cells [2]. This process releases both tumor antigens from the cancer and some autoantigens from damaged normal cells [3], all of which are directed by the antigen-presenting cells and used to activate more T cells [4]. As a consequence of this mixing effect, some of the T cells now recognize and attack normal tissues, causing autoimmune side effects.

Pembrolizumab is a humanized monoclonal antibody that inhibits the PD-1/PD-L1 interaction, restoring cytotoxic activity of T cells.3 However, this sustained immune activation may result in a characteristic profile of inflammatory adverse effects, known as immune-mediated adverse events (immune-related adverse events, irAEs), which can affect virtually any organ or system.

The most frequently involved organs include the gastrointestinal tract, endocrine glands, skin, and liver, [4] while other systems such as the central nervous, cardiovascular, pulmonary, musculoskeletal, and hematologic are less frequently affected. The timing of the appearance of IRAs is variable and depends on the organ involved, and can manifest from the first weeks to months after the start of treatment, and even after its suspension.

Skin toxicities represent the most frequent and earliest onset irAEs, usually within the first three weeks of treatment, with an incidence of close to 50%. In most cases they are low-grade and do not require discontinuation of immunotherapy; However, severe cutaneous manifestations (grade 3–4) are rare, with an incidence

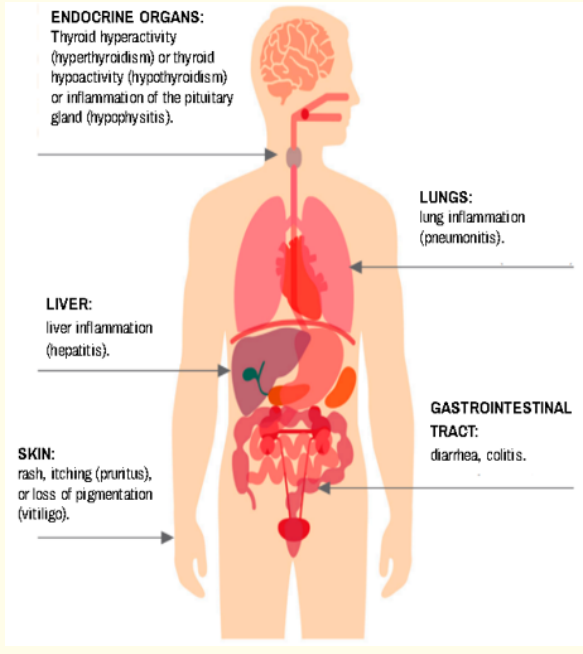


Figure 4

of less than 3% in patients treated with monotherapy, [5] but can be associated with significant morbidity and mortality if they are not recognized and treated appropriately.

Time of Onset of EA (Adapted Hassel JC, Heinzerling L, Aberle J., *et al.*) [6].

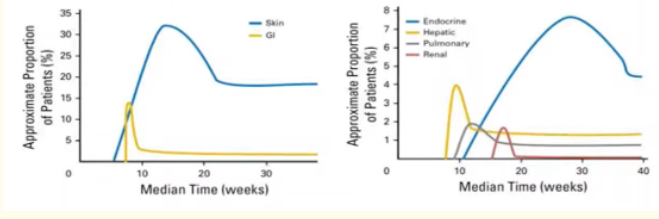


Figure 5

From a histopathological point of view, skin reactions associated with ICI can be grouped into four main patterns: inflammatory skin disorders with psoriasiform or lichenoid patterns, with lichenoid interface dermatitis being one of the most frequent findings; immune-mediated bullous dermatoses, such as bullous pemphigoid; keratinocyte alterations, including Grover's disease and acantholytic dyskeratosis; and alteration-mediated reactions of melanocytes, such as nevi regression, nodular prurigo, tumor melanosis and vitiligo [8-11].

Initial management of immune-mediated skin toxicities requires careful assessment of clinical severity, with particular emphasis on ruling out life-threatening dermatological emergencies such as DRESS syndrome, Stevens-Johnson syndrome or toxic epidermal necrolysis. It is also essential to make a differential diagnosis with infectious causes and systemic diseases. Skin biopsy is a key tool to confirm the diagnosis.

Treatment should be adjusted to the severity of the condition, in accordance with the CTCAE 1 classification and current guidelines. In severe or life-threatening cases, hospitalization, early initiation of systemic corticosteroid therapy, and definitive discontinuation of ICI treatment are recommended [12]. Given the wide range of possible IRAs, a multidisciplinary and collaborative approach is essential, since early recognition and timely treatment allows serious complications to be avoided and, in some cases, makes it possible to continue cancer treatment.

Conclusion

Immune-mediated dermatitis is a common and early-onset toxicity associated with the use of immune checkpoint inhibitors. This case highlights the importance of early recognition and timely management, according to clinical severity, to ensure patient safety and optimize cancer treatment.

Management of Immunotherapy-Related Toxicities NCCN Guideline Version 1.2025.

Bibliography

1. "Common Terminology Criteria for Adverse Events (CTCAE) Version 5.0". (2017).

2. Wei SC., *et al*. "Fundamental Mechanisms of Immune Checkpoint Blockade Therapy". *Cancer Discovery* 8.9 (2018): 1069-1086.

3. Keir ME., *et al*. "PD-1 and its ligands in tolerance and immunity". *Annual Reviews of Immunology* (2008).

4. Postow MA., *et al*. "Immune-related adverse events associated with immune checkpoint blockade". *The New England Journal of Medicine* 378.2 (2018)

5. Hassel JC., *et al*. "Combined immune checkpoint blockade (anti-PD-1/anti-CTLA-4): Evaluation and management of adverse drug reactions". *Cancer Treatment Review* 57 (2017): 36-49.

6. Belum VR., *et al*. "Characterisation and management of dermatologic adverse events to agents targeting the PD-1 receptor". *European Journal of Cancer* 60 (2016): 12-25.

7. Adaptado: Weber J., *et al*. "Reprinted with permission. © (2017) American Society of Clinical Oncology. All rights reserved". *Journal of Clinical Oncology* 35.7 (2017): 785-792.

8. Curry JL., *et al*. "Diverse types of dermatologic toxicities from immune checkpoint blockade therapy". *Journal of Cutaneous Pathology* 44 (2017): 158–176.

9. Shi VJ., *et al*. "Clinical and histologic features of lichenoid mucocutaneous eruptions due to anti-programmed cell death 1 and anti-programmed cell death ligand 1 immunotherapy". *JAMA Dermatology* 152 (2016): 1128-1136.

10. Nagarajan P., *et al*. "Lichenoid dermatologic toxicity from immune checkpoint blockade therapy. A detailed examination of the clinicopathologic features". *American Journal of Dermatopathology* 39 (2017): 121-129.

11. Uemura M., *et al*. "A case report of Grover's disease from immunotherapy-a skin toxicity induced by inhibition of CTLA-4 but not PD-1". *Journal of Immunotherapy Cancer* 4 (2016): 55.

12. J Haanen., *et al*. "Management of toxicities from immunotherapy: ESMO Clinical Practice Guideline for diagnosis, treatment and follow-up". ESMO Guidelines Committee (2022).