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# Coexistence of lichenoid and psoriasiform eruptions following PD-1 blockade immunotherapy

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Dear Editors,

Lichen planus (LP) and psoriasis are chronic inflammatory skin diseases characterized by aberrant keratinization and T cell-mediated autoimmunity. Although numerous cases of lichenoid or psoriasiform eruptions have been reported as immune-related adverse events (irAEs) [1], their coexistence is extremely rare. Here, we report a unique case of cutaneous irAE in which both lichenoid and psoriasiform eruptions developed simultaneously following programmed cell death 1 (PD-1) blockade therapy.

A 77-year-old Japanese man was diagnosed with advanced laryngeal cancer with lung metastasis and began treatment with pembrolizumab (200 mg every 3 weeks) 8 months prior. After eleven treatment cycles, he developed skin eruptions on the extremities and trunk. Physical examination revealed flat-topped, polygonal, violaceous, scaly papules on the bilateral forearms and hands (Figures 1a,c) and red, scaly papules on the abdomen and lower limbs (Figures 1b,d). He exhibited no oral mucosal involvement. A skin biopsy from the hand lesions showed orthokeratosis, hyperkeratosis, hypergranulosis, dyskeratosis, basal liquefaction, and a partial lichenoid inflammatory infiltrate (Figures 1e,g). In contrast, a biopsy from the abdominal lesions revealed parakeratosis, hypogranulosis, and acanthosis with irregular elongation of the rete ridges (Figures 1f,h), consistent with diagnoses of lichenoid tissue reaction and psoriasiform dermatitis, respectively. The patient had no prior history of LP or psoriasis. Laboratory tests, including serologic tests for the hepatitis C virus and human immunodeficiency virus, were negative. He was not taking any other medications that might have triggered LP or psoriasis. Based on clinical, histopathological, and medication history findings, we diagnosed pembrolizumab-induced lichenoid and psoriasiform eruptions. No other irAEs were noted. The course of the cancer showed progressive disease, and pembrolizumab was discontinued a month later. Initial treatment with topical corticosteroids and vitamin D analogs over 4 months led to improvement of the skin lesions. However, he experienced a flare-up, showing diffuse red scaly papules over the entire body, which was successfully managed with oral prednisolone (20 mg daily, tapered to discontinuation over 3 months), resulting in symptom resolution.

LP and psoriasis share overlapping immunopathogenic pathways, including T cell infiltration and production of inflammatory cytokines (e.g., tumor necrosis factor-α and

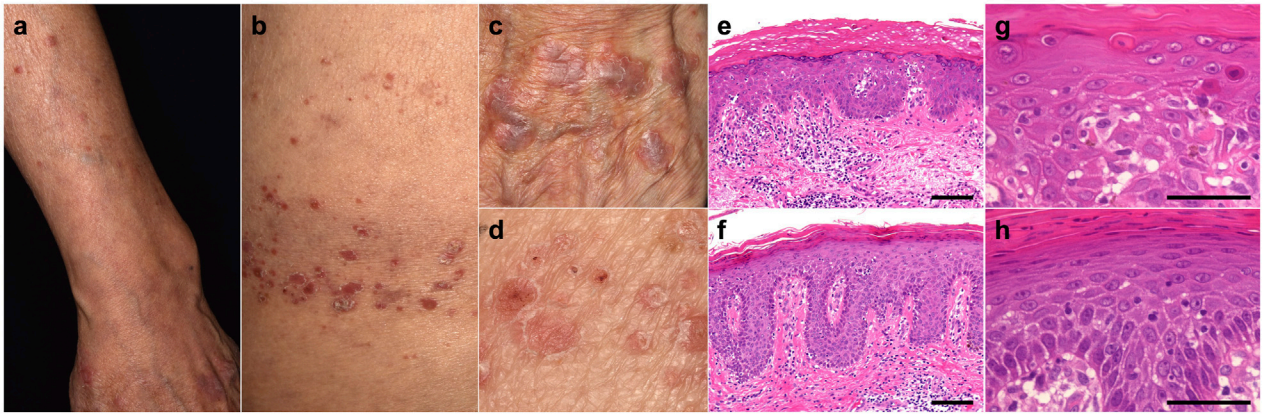


FIGURE 1
Clinical and pathological findings **(a,c)** Flat-topped, polygonal, violaceous, scaly papules on the forearm and hand. **(b,d)** Red, scaly papules on the abdomen. **(e,g)** Orthokeratotic hyperkeratosis, hypergranulosis, a focal lymphocytic infiltrate in the upper dermis, and vacuolar degeneration along the dermoepidermal junction with apoptotic keratinocytes. **(f,h)** Parakeratosis, hypogranulosis, elongation of the rete ridges, and a perivascular inflammatory infiltrate in the upper dermis. Scale bars represent 100 μm **(e,f)** and 50 μm **(g,h)**.

interferon-γ), which may be activated by immune checkpoint inhibitors (ICIs). Indeed, lichenoid and psoriasiform eruptions are more frequently reported in patients receiving PD-1/programmed cell death ligand 1 inhibitors than in those treated with cytotoxic T-lymphocyte antigen 4 inhibitors [1]. Although such eruptions typically occur 3–12 weeks after ICI initiation [1], this case represents a rare example of late-onset cutaneous irAE.

Both LP and psoriasis are associated with the Koebner phenomenon, which can be triggered by trauma, allergic/irritant reactions, drug exposure, dermatoses, and certain treatments [2]. Several reports have documented a spontaneous co-occurrence of LP and psoriasis in a single patient [3–5]. In a case report by Ujiie *et al.*, LP and psoriasis developed on vitiliginous skin [5], suggesting that photodamage had a role in the manifestation of the Koebner phenomenon. Similarly, photodamage and/or mechanical stress may have contributed to the distinct patterns observed in our patient: lichenoid eruption on sun-exposed areas and psoriasiform eruption on sun-protected areas.

In summary, we describe a rare case of cutaneous irAE presenting with simultaneous lichenoid and psoriasiform eruptions. We hope this report will aid in the broader understanding and clinical management of cutaneous irAEs.

## Data availability statement

The original contributions presented in the study are included in the article/supplementary material, further inquiries can be directed to the corresponding author.

## Ethics statement

Written informed consent was obtained from the individual for the publication of any potentially identifiable images or data included in this article.

## Author contributions

TO conceived the study and wrote the initial draft of the manuscript. SM, KT, and TN edited the manuscript. All authors contributed to the article and approved the submitted version.

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## Conflict of interest

The author(s) declared that this work was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

## Generative AI statement

The author(s) declared that generative AI was not used in the creation of this manuscript.

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