

Nivolumab (PD-1 Inhibitor) Induced Exacerbation of Psoriasis

Sir,

A 54-year-old gentleman with recurrence of supraglottic carcinoma larynx presented to us with papulosquamous lesions on the trunk and extremities noted 11 days after third dose of immunotherapy with nivolumab. He was started on IV nivolumab 100 mg biweekly after total laryngectomy. Eleven days after immunotherapy, he developed erythematous pruritic papulosquamous lesions. Historically, he had chronic plaque psoriasis 5 years prior which was in remission. There was no new onset joint pain. Cutaneous examination revealed symmetrically located bright erythematous scaly papules and plaques in a generalized distribution [Figures 1 and 2]. Finger nails showed pitting and distal onycholysis [Figure 3]. Scalp was not involved. A clinical diagnosis of psoriasis was made based on the past history of psoriasis, classical appearance of scaly erythematous plaques on the extensor aspect of extremities, trunk, palms, and soles along with characteristic nail changes such as pitting and onycholysis. Nivolumab was discontinued for a week and the patient was started on acitretin 25 mg once daily along with NBUBV phototherapy for psoriasis. Subsequently, nivolumab was restarted after 1 week as there was no further worsening of cutaneous symptoms and the treatment for psoriasis continued. At follow-up after 1 month he had significant improvement with phototherapy and acitretin.

Psoriasis can be induced or exacerbated by PD-1 inhibitors.^[1] A study done on 21 patients with anti-PD-1-induced psoriasis found that the timeline to develop psoriasis was shorter if the patients had a previous psoriasis.^[2] Although stress can aggravate psoriasis, there are no reports of psoriatic flare due to underlying carcinoma larynx. Our patient developed skin lesions 11 days



Figure 1: Symmetrically distributed scaly papules and plaques in a generalized distribution



Figure 2: Bright erythematous scaly plaques distributed symmetrically on both soles



Figure 3: Pitting and distal onycholysis of finger nails

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after the third dose of immunotherapy, demonstrating a temporal correlation between immunotherapy and recurrence of psoriasis. A histopathological examination was deferred in this case as the clinical picture was classical of psoriasis and only nonclassical or refractory cases are usually biopsied.^[3] The pathogenesis of psoriasis is widely debated and currently it is well known that interleukin-17 (IL-17) and IL-22 produced by T helper (Th) 17 cells play pivotal roles in the pathogenesis.^[4]

Studies have shown that blockade of immune-checkpoint receptors such as PD-1 and cytotoxic T-lymphocyte antigen-4 by its antibodies augment the helper T cell type 1 (Th1) and Th17 cell activities, correlating with antitumor efficacy and exacerbation of psoriasis.^[1,4] New-onset psoriasis do not usually relapse after discontinuing immunotherapy. In a phase 1b study, other cutaneous adverse effects that were reported in 31% patients include a rash (12%), pruritus (9%), and vitiligo (3%).^[2] Photosensitivity, acneiform, and lichenoid eruptions have also been reported.^[1,2] In spite of the cutaneous flare, our patient had a regression of the malignancy correlating with the antitumor efficacy of nivolumab. A personal or family history of preexisting psoriasis should be asked for before initiation of immune checkpoint inhibitors. This will prompt the early diagnosis and management of psoriasis in such patients. We would like to highlight that psoriasis may be induced or worsened by immune checkpoint inhibitors, but this can be managed by standard therapy without significant interruption of immunotherapy.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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Conflicts of interest

There are no conflicts of interest.

References

1. Ohtsuka M, Miura T, Mori T, Yamamoto T. Occurrence of psoriasiform eruption during nivolumab therapy for a patient with primary oral mucosal melanoma. *JAMA Dermatol* 2015;151:797-9.
2. Bonigen J, Raynaud-Donzel C, Hureauux J, Kramkimel N, Blom A, Jeudy G, *et al.* Anti-PD1-induced psoriasis. A study of 21 patients. *J Eur Acad Dermatol Venereol Leprol* 2017;31:e254-7.
3. Chau T, Parsi KK, Ogawa T, Kiuru M, Konia T, Li C, *et al.* Psoriasis or not? Review of 51 clinically confirmed cases reveals an expanded histopathologic spectrum of psoriasis. *J Cutan Pathol* 2017;44:1018-26.
4. Matsumura N, Ohtsuka M, Kikuchi N, Yamamoto T. Exacerbation of psoriasis during nivolumab therapy for metastatic melanoma. *Acta Derm Venereol* 2015;96:259-60.