



Vogt-Koyanagi-Harada Syndrome Induced by Pembrolizumab in a Patient with Non-Small Cell Lung Cancer

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Pembrolizumab, a programmed cell death 1 inhibitor, is a humanized monoclonal antibody that has anti-tumor activity in advanced NSCLC and unresectable melanoma.^{1,2}

Vogt-Koyanagi-Harada (VKH) syndrome is a rare condition associated with a systemic immune reaction against melanocytes. Drug-induced VKH syndrome has been reported in patients with melanoma who have received immunotherapy^{3,4}; however, no case of pembrolizumab-induced VKH syndrome has been described in patients with NSCLC. Here we report a case of pembrolizumab-induced VKH syndrome in a patient with NSCLC.

Case Presentation

A 61-year-old male Japanese current smoker was admitted to Iwakuni Clinical Center for a bloody phlegm and back pain. A 5-cm mass, enlarged mediastinal lymph nodes, and left adrenal gland were observed by computed tomography (Fig. 1). Transbronchial lung biopsy and immunohistochemical testing for programmed death ligand 1 (with the PD-L1 IHC 22C3 pharmDx assay, Agilent Technologies, Santa Clara, CA) led to a diagnosis of advanced programmed death ligand 1-positive NSCLC. The patient was treated with pembrolizumab, 200 mg every 3 weeks. After 3 cycles of treatment, he presented with ocular pain and auditory changes. Uveitis (Fig. 2) and sensorineural hearing loss were observed. His cerebrospinal fluid was examined; development of asymptomatic aseptic meningitis was observed (Table 1). VKH syndrome was diagnosed, the patient was treated with a corticosteroid, and his uveitis improved. Pembrolizumab was discontinued.

Discussion

VKH syndrome is a disorder caused by an immune response to melanocytes, so pembrolizumab-induced VKH syndrome has been reported in patients with melanoma.³ Uveitis is the main symptom of VKH and is reported as one of the adverse events associated with pembrolizumab.⁵ In searches of PubMed, we did not find any case reports of pembrolizumab-induced VKH syndrome in patients with NSCLC. To the best of our knowledge, we have presented the first case report of development of pembrolizumab-induced VKH syndrome in a patient undergoing treatment for NSCLC.

This case shows that pembrolizumab may induce VKH syndrome in patients with NSCLC. VKH syndrome is a disorder that can be controlled, but uveitis, if left untreated, may lead to permanent vision loss. We should be aware of this complication.

In summary, we have described a previously unreported patient with development of pembrolizumab-induced VKH syndrome during treatment of NSCLC. This case highlights the importance of recognition to ophthalmic symptoms in patients who have received pembrolizumab.

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Figure 1. (A) Computed tomography (CT) scan showing a 5 × 4-cm mass in the right upper lobe of the lung. (B) CT scan showing enlarged mediastinal lymph nodes. (C) CT scan showing an enlarged left adrenal gland.

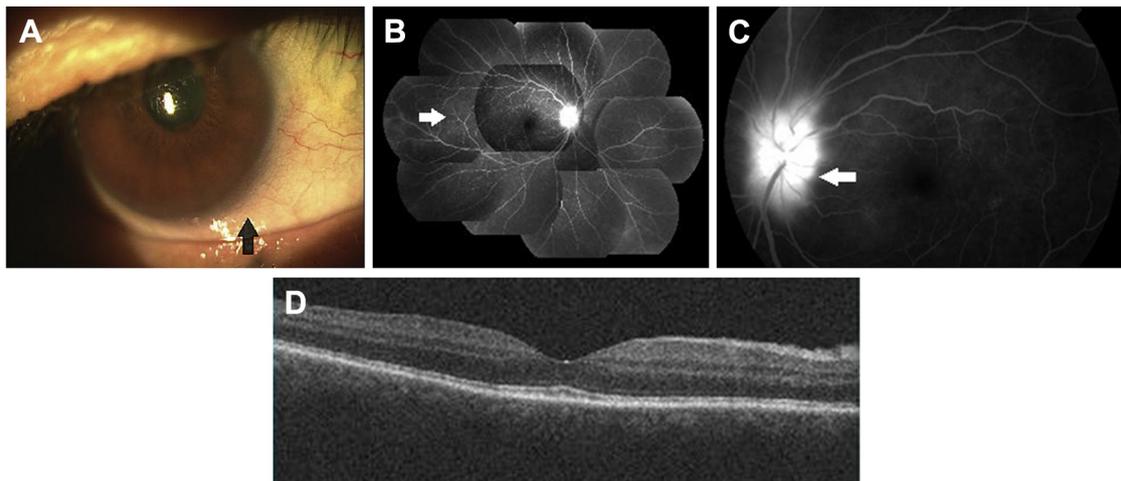


Figure 2. (A) Ciliary hyperemia is observed. (B) Granular leakage of fluorescein is evident by fundus fluorescein angiography. (C) Leakage of fluorescein from the optic disk is observed. (D) Optical coherence tomography shows normal lining of the retinal pigment epithelium.

Table 1. Results of Examination of Cerebral Spinal Fluid		
Indicator	Normal Range	Actual Value
Cerebrospinal fluid cell count	0-5 cells/ μ L	15 cells/ μ L
Mononuclear cells	—	6%
Polynuclear cells	—	94%
Cerebrospinal fluid protein level	15-45 mg/dL	25.5 mg/dL
Cerebrospinal fluid glucose level	45-80 mg/dL	54 mg/dL

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