

Case of pembrolizumab-induced TB arthritis in elbow joint

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Introduction: Pembrolizumab is immune checkpoint inhibitor, monoclonal antibody of Anti-PD1(Programmed cell death-1). It binds to PD-1 receptor and activates tumor specific T cell through interrupting negative immune regulation. Despite positive outcomes of immunotherapies in solid cancers, immune-related adverse effects(IRAEs) may occur. Here, we present a case of tuberculosis arthritis as a IRAE, by applying pembrolizumab. **Case report:** A 65-year-old man diagnosed with EGFR mutant(L861Q) non-small cell lung cancer was admitted to Emergency Department with fever and pain on Left elbow joint. Previously, the patient received 6 cycles of osimertinib, 2 cycles of alimta-cisplatin combination chemotherapy, 3 cycles of pembrolizumab. Before pembrolizumab initiation, he had Lt. elbow pain for 6 months. At the time of Emergency Department admission, severe soft tissue swelling was observed in Lt. elbow. MRI findings showed large joint effusion with synovial proliferation and irregular thick synovial enhancement. These findings suggested infectious arthritis with osteomyelitis. Due to recurrent and aggravated Lt. elbow pain, surgical drainage and excisional biopsy was done. Pathology results showed chronic granulomatous inflammation with marked necrosis and multinucleated giant cells. Ziehl-Neelsen stain of specimen reinforced the result by detecting acid-fast bacilli. Tuberculosis PCR was also positive. Anti tuberculosis drugs such as isoniazid, rifampicin, ethambutol, pyrazinamide was applied and symptoms improved shortly. He discharged and was sent to outpatient department with anti tuberculosis medication. **Discussion:** Some patients are at increased risk for IRAEs, who have underlying autoimmune disease, organ or hematopoietic stem-cell transplants, chronic infection, organ dysfunction and advanced age. Careful administration of immune checkpoint inhibitor could make tumor decreased. More studies including case reports, retrospective studies dealing with high risk population would help to use immune checkpoint inhibitor in real-world patients.

