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LETTER TO THE EDITOR

Complete response of metastatic alveolar soft part sarcoma in an adolescent female treated by combined immune checkpoint inhibitors

To the Editor:

Although alveolar soft part sarcoma (ASPS) is a tumor that displays a generally indolent course, ASPSs most often metastasize to the lungs, bone, or brain.[1] Metastatic disease at presentation is the most significant factor for survival in patients with ASPS, with a 5-year overall survival rate of approximately 20%.[1] Other risk factors of poor prognosis include a large tumor size >10 cm, a truncal location, incomplete surgical margins, and bone involvement.[2–4] Several targeted agents or immune checkpoint inhibitors (ICPIs) have been used to prolong the survival of patients with refractory or metastatic ASPS.[5,6] However, single-agent therapies of sunitinib or pazopanib only showed minimal effect and did not improve the survival of the patients with ASPS.[6] Further, there are only anecdotal cases that demonstrate definitive efficacy of applying ICPIs in ASPS.[7,8] We present the case of a Korean adolescent female with metastatic ASPS who showed complete response (CR) after combined ICPI treatment.

A 17-year-old, Korean, adolescent female was diagnosed with ASPS of the right infrarenal retroperitoneal space, with destruction of the L2 vertebral body and pulmonary metastasis (Figure 1A–C). The pathology images are shown in Figure S1. Resection of the retroperitoneal tumor, right nephrectomy, and wedge resection of metastatic pulmonary lesions were performed. However, follow-up imaging revealed tumor recurrence (Figure 1D). The residual tumor progressed despite anthracycline-based chemotherapy and receiving sunitinib, pazopanib, and a combination of pembrolizumab and axitinib (Figure 1E). The brain image revealed new metastatic nodule (Figure 1F). Therefore, her regimen was switched to nivolumab 3 mg/kg treatment every 2 weeks and ipilimumab 1 mg/kg every 6 weeks. This combination is a management regimen for rare tumors and sarcomas.[9] This study was approved by the institutional review board of Keimyung University Dongsan Hospital (Approval No. IRB No. 2022-01-080). Informed consent was obtained from the patient and her parents. Six months after the treatment regimen, the tumor showed CR (Figure 1G,H). To date, no adverse events have been noted.

Integration of ICPIs in managing patients with sarcoma is challenging due to the disease's rarity and heterogeneity.[7] The combination of nivolumab (PD-1 inhibitor) and ipilimumab (CTLA-4 inhibitor) aids the body's T cells to attack cancer cells through complementary mechanisms of action.[10,11] This combination revealed promising efficacy in some sarcoma subtypes with manageable safety profiles.[9] Recently, there have been two reported adult cases that showed positive responses after receiving the combination of nivolumab and ipilimumab.[12,13] The Korean adolescent presented in this report was successfully treated using combined ICPIs, despite the presence of several poor prognostic factors. To the best of our knowledge, this is the first report of an adolescent patient with metastatic ASPS who achieved CR with a combination of ICPIs. We have planned to continue her current regimen for 2 more years.

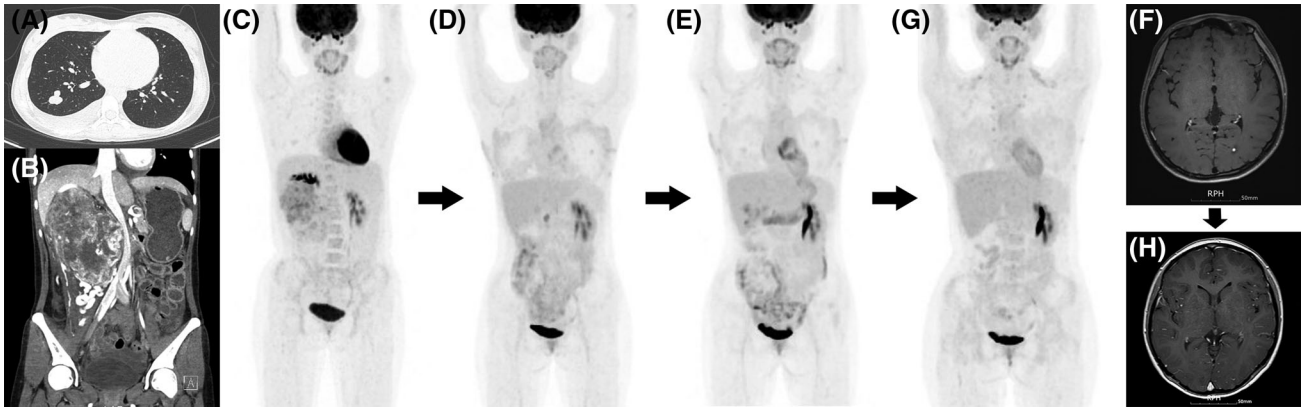

FIGURE 1 Initial computed tomography (CT) of chest (A), magnetic resonance image (MRI) of abdomen (B) and brain (F–H) and serial positron emission tomography (PET) scan of the torso (basal skull to proximal thigh) with F^{-18} FDG and attenuation correction by CT in a female with alveolar soft part sarcoma (ASPS) (C–E and G). (A) Chest CT revealed well-defined variable-sized nodules, which were pathologically confirmed as pulmonary metastases of ASPS. (B) MRI of abdomen showed a huge, solid heterogeneous mass in the right infrarenal and paravertebral region, measuring 14 × 11 × 8 cm with internal hemorrhage and necrosis. (C) Initial PET-CT revealed a 14 cm hypermetabolic mass at the right infrarenal area (SUVmax: 5.7) and two hypermetabolic nodules of the right lower lung (SUVmax: 1.8). (D) Follow-up PET-CT performed 1 month after the operation. It revealed a newly formed hypermetabolic lesion in the bed of the right nephrectomy, consistent with tumor recurrence. (E) Follow-up PET-CT revealed an increased extent of previous hypermetabolic mass lesions of the right nephrectomy bed and right paravertebral space. (F) MRI of brain showed new metastatic nodule in the left peritrigonal white matter. (G) Complete resolution of cancer recurrence at the right nephrectomy bed and right paravertebral space, and no abnormal FDG uptake in the lungs. (H) Follow-up MRI of brain showed no nodular enhancing lesion in the left peritrigonal white matter

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CONFLICT OF INTEREST

The authors declare that there is no conflict of interest.

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SUPPORTING INFORMATION

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