



EP11.07: Immune Checkpoint Inhibitor-Related Myelitis in Non-Small Cell Lung Cancer: A Review of Reported Cases



IASLC 2026 World
Conference on Lung Cancer
SEPTEMBER 12 – 15, 2026
SEOUL, REPUBLIC OF KOREA

Ruiqi Song^{1,2}, Xinyue Li^{1,2}, Dujiang Liu^{1,2}, Yanjun Xu^{1,2}
1 Department of Zhejiang Cancer Hospital, Hangzhou Institute of Medicine (HIM), Chinese Academy of Sciences, Hangzhou, Zhejiang 310022, China.
2 Postgraduate training base Alliance of Wenzhou Medical University (Zhejiang Cancer Hospital), Hangzhou, Zhejiang, 310022, China.
Correspondence: junxy88@163.com

INTRODUCTION

Myelitis related to immune checkpoint inhibitors (ICIs) is a rare but potentially disabling or fatal adverse event. In non-small cell lung cancer (NSCLC), recognition is particularly challenging because the clinical and imaging features may overlap with those of tumor progression, radiation-induced spinal cord injury, infectious myelitis, and leptomeningeal metastasis. Unlike previous cross-tumor reviews, this study specifically focused on magnetic resonance imaging (MRI) phenotypes, post-radiotherapy lesion patterns, differential diagnosis, and subsequent clinical management in NSCLC.

METHODS

We performed a systematic review and case-based analysis of published NSCLC cases of ICI-related myelitis or inflammatory myelopathy that met the inclusion criteria. Data were extracted on baseline characteristics, ICI regimens, latency to onset, neurologic manifestations, MRI and cerebrospinal fluid (CSF) findings, autoantibody status, treatment, and outcomes. Imaging patterns, clinical subtypes, and management pathways were then summarized.

DISCUSSION AND CONCLUSION

- Actionable Take Away Message**
- In NSCLC patients with new neurologic symptoms after ICI therapy, consider ICI-related myelitis early.
 - Use MRI pattern, prior radiotherapy field, and AQP4 status to guide diagnosis and treatment; escalate to PLEX/IVIG when steroid response is inadequate.
 - **Future Direction for Research**
 - Validate these clinical and imaging phenotypes in larger multicenter cohorts.
 - Define standardized treatment strategies and safe criteria for ICI rechallenge.

REFERENCES & ACKNOWLEDGEMENTS

References:

1. Narumi Y, Yoshida R, Minami Y, Yamamoto Y, Takeguchi S, Kano K, et al. Neuromyelitis optica spectrum disorder secondary to treatment with anti-PD-1 antibody nivolumab: the first report. BMC Cancer. 2018;18(1):95. doi:10.1186/s12885-018-3997-2. PMID:29361915.
2. Carausu M, Beddok A, Langer A, Misset JL, Ranchon F, Lassau N, et al. Radiation myelitis after pembrolizumab administration, with favorable clinical evolution and safe rechallenge: a case report and review of the literature. J Immunother Cancer. 2019;7(1):317. doi:10.1186/s40425-019-0803-x. PMID:31753021.
3. Charabi S, Hejl C, von Essen MR, Larsen CS, Jacobsen S, Nissen MH, et al. Case Report: Longitudinal Extensive Transverse Myelitis With Novel Autoantibodies and Immunomodulatory Treatment Response Following Pembrolizumab. Front Neurol. 2021;12:655283. doi:10.3389/fneur.2021.655283. PMID:33995251.
4. Kubo K, Wadasaki K, Doi M, Takayasu Y, Nomura R, Kono T, et al. Radiation myelitis after durvalumab administration following chemoradiotherapy for locally advanced non-small cell lung cancer: an illustrative case report and review of the literature. Int Cancer Conf J. 2019;8(3):118-121. doi:10.1007/s13691-019-00367-5. PMID:31218187.
5. Hirano S, Kojima A, Nakayama Y, Takeda T, Kishimoto T, Takahashi T, et al. A case report of neuromyelitis optica spectrum disorder induced by pembrolizumab treatment for lung adenocarcinoma: a clinical and immunohistochemical study. BMC Neurol. 2022;22(1):483. doi:10.1186/s12883-022-02987-6. PMID:36517738.
6. Chatterton S, Xi S, Jia JX, Krause M, Long GV, Atkinson V, et al. Case series: Immune checkpoint inhibitor-induced transverse myelitis. Front Neurol. 2023;14:1130313. doi:10.3389/fneur.2023.1130313. PMID:36895912.

Artificial Intelligence (AI) Use Disclaimer
generative AI tools were used to generate, analyze, interpret, or substantively develop the scientific or educational content of this presentation. All presentation content was independently developed, reviewed, and approved by the authors.

RESULTS

Study	Cancer context	ICI exposure	Myelitis phenotype	Key mechanistic clue	Treatment and outcome
Narumi et al. 2018 [1]	Lung squamous cell carcinoma	Nivolumab	Longitudinally extensive myelitis/NMOSD	AQP4 seroconversion after ICI; MOG negative	Steroid pulse plus plasma exchange; poor steroid responsiveness; partial recovery
Carausu et al. 2019 [2]	Metastatic NSCLC	Pembrolizumab after vertebral RT	Radiation-associated myelitis within prior T12-L2 field	Radiation recall or radiation-primed inflammatory injury	ICI discontinuation plus steroids; complete recovery; safe pembrolizumab rechallenge
Charabi et al. 2021 [3]	Metastatic NSCLC	Pembrolizumab	LETM	Novel neuronal autoantibodies, high CSF CXCL13, intrathecal IgG synthesis	Plasma exchange plus high-dose methylprednisolone; initial response, relapse after taper, fatal outcome
Kubo et al. 2019 [4]	Locally advanced NSCLC after CRT	Durvalumab consolidation	Early radiation myelitis at thoracic cord	Onset too early and dose too low for typical delayed radiation injury alone	Steroids led to radiological and partial clinical improvement; residual sphincter dysfunction
Hirano et al. 2022 [5]	Lung adenocarcinoma	Pembrolizumab-based therapy	AQP4-positive NMOSD with optic neuritis, myelitis and diencephalic involvement	AQP4 expression on CD68-positive cells in lung tumour tissue	ICI discontinuation plus dexamethasone; partial recovery
Chatterton et al. 2023 [6]	Mixed cancers, including one NSCLC case	Nivolumab, nivolumab/ipilimumab or pembrolizumab; two cases with prior spinal RT	ICI-induced transverse myelitis/LETM	High relapse rate; radiotherapy as a susceptibility cofactor	3 of 4 cases relapsed or were steroid refractory; escalation with IVIg or plasmapheresis often required

Table 1 Clinical and Paraclinical Features, Treatment, and Outcome in the 6 Cases of Myelitis Associated With ICI From Our Series