Teaching NeuroImages:

Three complications of small-cell lung cancer involving the brain

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Figure MRI shows brain metastases, limbic encephalitis, and leptomeningeal carcinomatosis in one patient

(A, B) Postcontrast T1-weighted axial MRI shows multiple gadolinium-enhancing brain metastases (arrows). (C) Sagittal fluid-attenuated inversion recovery image; arrows show hyperintense lesions at the mesiotemporal cortex and other parts of the limbic system. (D) Axial diffusion-weighted image; arrow shows reduced diffusion at the left peri-insular region.

A 53-year-old man with small-cell lung cancer (SCLC) with brain metastases presented with acute hyperthermia (up to 39°C) without evidence of infection, aphasia, and 2 generalized epileptic seizures. MRI made 3 brain complications of SCLC visible. First, multiple brain metastases (figure, A and B) were noted. Second, hyperintense areas at the limbic system (figure, C) were present, favoring a diagnosis of paraneoplastic limbic encephalitis, although associated antibodies were negative. Limbic encephalitis can cause both hyperthermia and seizures.¹ Third, aphasia was explained by a region of reduced diffusion at the left insula (figure, D). Consistently, CSF analysis confirmed leptomeningeal carcinomatosis.

AUTHOR CONTRIBUTIONS

Both authors were involved in clinical care and investigative workup of the patient. Dr. Neuhaus conceived and designed the study and developed and wrote the neurology part of the manuscript. Dr. Käfer wrote the oncology part and revised the manuscript.

STUDY FUNDING

No target funding reported.

DISCLOSURE

The authors report no disclosures relevant to the manuscript. Go to Neurology.org for full disclosures.

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Neurology 2017;89:e40

DOI 10.1212/WNL.0000000000004150

This information is current as of July 24, 2017

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