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Teaching NeuroImage: Glucose Hhypermetabolism in the basal Basal gangliaGanglia: The decisive Decisive clue Clue to the diagnosis Diagnosis of an unusual Unusual antiAnti-LGI1 encephalitisEncephalitis

Ye Eun Kim, MD[1]; Jae-Sung Lim, MD & PhD[1]; Yoojin Lee, MD[1]; Jae-Hong Lee, M.D., Ph.D[1]

Corresponding Author:

Jae-Hong Lee, jhlee@amc.seoul.kr

1. Asan Medical Center, University of Ulsan College of Medicine, Seoul, Republic of Korea

Equal Author Contribution:

Contributions:

Ye Eun Kim: Drafting/revision of the manuscript for content, including medical writing for content; Major role in the acquisition of data; Analysis or interpretation of data; Additional contributions: lead author

Jae-Sung Lim: Drafting/revision of the manuscript for content, including medical writing for content; Major role in the acquisition of data; Analysis or interpretation of data

Yoojin Lee: Analysis or interpretation of data

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A 61-year-old woman presented with subacute excessive sweating, dizziness and cognitive impairment. Neurologic examination was unremarkable and MMSE score was 13 with disorientation and dyscalculia. Extensive workup revealed only mild hyponatremia (Na 132 mmol/L) and dysautonomia with hyperhidrosis and orthostatic hypotension. Brain MRI FLAIR revealed slight hyperintensities in medial temporal lobes, but FDG-PET showed hypermetabolism prominently in basal ganglia (SUVmax 10.57/ 9.83) and mildly in the right medial temporal lobe (SUVmax 5.64) (Figures 1, 2). CSF study showed no pleocytosis (WBC 4 cells/μL, glucose 92 mg/dL, protein 58.6 mg/dL) and anti-LGI1 antibody was detected. Her symptoms markedly improved with IV immunoglobulin.

Most cases of anti-LGI1 encephalitis present with cognitive dysfunction, psychiatric symptoms, or seizures. Autonomic dysfunction rarely triggers a timely diagnosis of anti-LGI1 encephalitis.[1] We conducted anti-LGI1 antibody testing, prompted by characteristic FDG-PET findings. This case illustrates that basal ganglia and medial temporal lobe hypermetabolism are two distinct targets of anti-LGI1 encephalitis, although similar findings can be found in other autoimmune encephalitis (e.g, anti-NMDA, anti-IgLON5) or autoimmune chorea.[2, 3]

Figure 1 title

Brain MRI FLAIR sequence and ^{18}F-FDG-PET

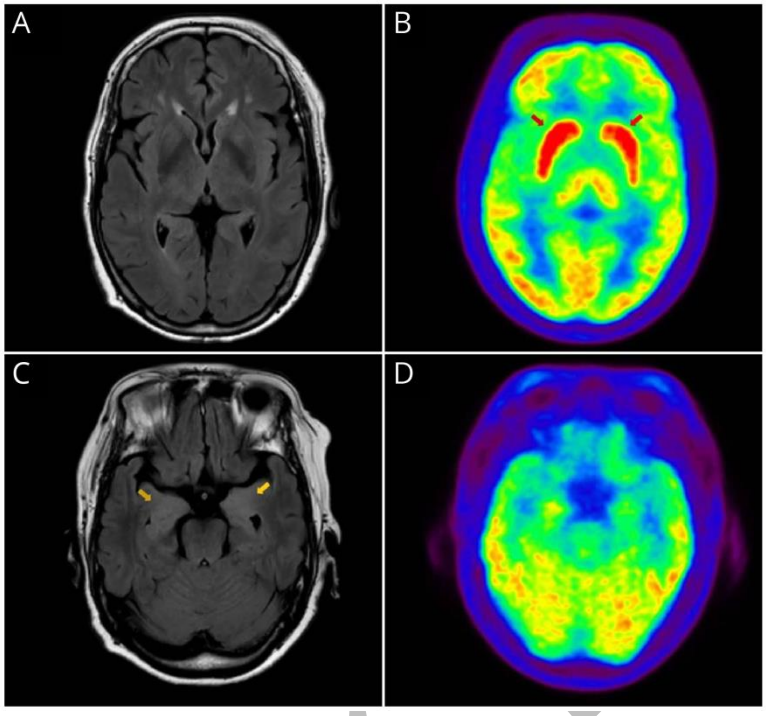

Figure 1 legend

We matched axial cuts showing the basal ganglia (A, B) and medial temporal lobes (C, D) of fluid-attenuated inversion recovery (FLAIR) MRI and ^{18}F-FDG-PET. FDG-PET image shows prominent glucose hypermetabolism in bilateral basal ganglia (B, red arrow). FLAIR image shows subtle hyperintensities in both medial temporal lobes (C, yellow arrow).

Figure 2 title

Brain MRI DWI and ADC sequence

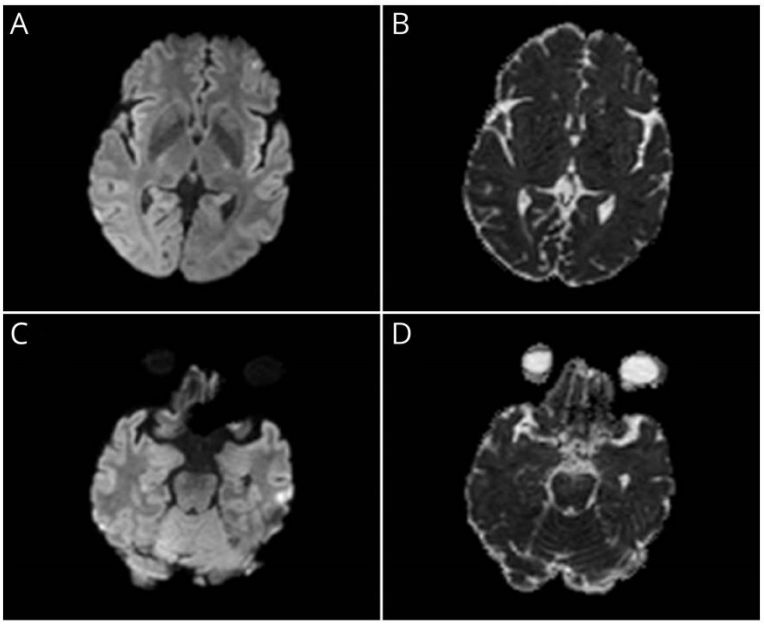

Figure 2 legend

We matched axial cuts showing the basal ganglia (A, B) and medial temporal lobes (C, D) of diffusion weighted imaging (DWI) and apparent diffusion coefficient (ADC) sequence of MRI. There was no diffusion restricted lesion.

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