

Transient global amnesia with bilateral hippocampal lesions during the COVID-19 global outbreak

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A 57-year-old man with a past medical history of dyslipidemia and type 2 diabetes mellitus experienced a sudden anterograde short-term memory deficit. He was previously working from an office; however, because of the coronavirus disease 2019 (COVID-19) crisis, he began working from home. As per the patient's narrative, he was supposed to visit a client. However, he was under exceptional stress because of the fear of getting infected by the virus during his visit. The following day, he could not remember the details of visiting the client or the events at home after work of the previous day. Thereafter, he

presented to the emergency department. On physical examination, he was alert and oriented to person, place, and time. Neurological examination was unremarkable. Magnetic resonance imaging (MRI) of the brain revealed a single punctate focus of restricted diffusion within the bilateral hippocampal regions, along with a corresponding focus of low signal intensity on the apparent diffusion coefficient map, confirming the diagnosis of transient global amnesia (Figure 1). At the 2-week follow-up, the previously visualized hippocampal lesion had disappeared. The electroencephalogram was normal. The

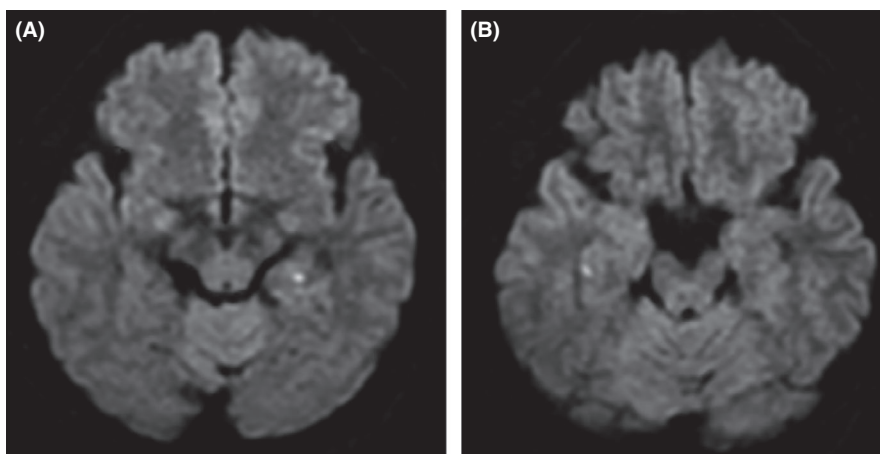


FIGURE 1 MRI of the brain revealed a single punctate focus of restricted diffusion within the bilateral hippocampal regions. (A), left hippocampal region; (B), right hippocampal region

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patient had no recollection of his memory loss; however, he did not show any residual neurological deficits.

Transient global amnesia is a rare clinical syndrome with a sudden onset of anterograde amnesia that recovers within 24 hours. It often occurs in the context of physical or emotional stress. Although the underlying pathophysiology is uncertain, focal hippocampal ischemia, venous congestion, migraine-related mechanisms, hypoxic-ischemic events, epilepsy, and metabolic stress may be involved.¹ Since the COVID-19 global outbreak, an increasing number of patients with transient global amnesia have been reported in Germany. Werner et al suggested that social distancing during the lockdown, uncertainty concerning the future, and the fear of getting infected increased the stress levels in the community, which may have triggered the transient global amnesia.² In our patient, the unusual emotional stress of work during the COVID-19 outbreak might have led to transient global amnesia.

Imaging study findings of transient global amnesia are controversial. In half of the cases of transient global amnesia, diffusion-weighted imaging (DWI) shows transient, small diffusion-restricted lesions in the hippocampus, occurring 24-72 hours after symptom onset.^{3,4} Bilateral, diffusion-restricted lesions within the hippocampus were reported in 20% of the cases of DWI abnormalities.⁴ The previous case report showed transient global amnesia with bilateral hippocampal lesions occurring in different contexts (physical or emotional events) was consistent with venous congestion, which suggested

that the presence of these lesions supported the venous-ischemic pathogenesis.⁵ Further studies are needed to elucidate the pathogenesis of this unknown disease.

CONFLICT OF INTEREST

The authors have no conflicts of interest to declare.

CONSENT FOR CASE REPORT

Patient consent has been obtained.

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REFERENCES

1. Spiegel DR, Smith J, Wade RR, et al. Transient global amnesia: current perspectives. *Neuropsychiatr Dis Treat*. 2017;24(13):2691-703.
2. Werner R, Keller M, Woehle JC. Increased incidence of transient global amnesia during the Covid-19 crisis? *Neurol Res Pract*. 2020;2(1):26.
3. Bartsch T, Deuschl G. Transient global amnesia: functional anatomy and clinical implications. *Lancet Neurol*. 2010;9(2):205-14.
4. Sander K, Sander D. New insights into transient global amnesia: recent imaging and clinical findings. *Lancet Neurol*. 2005;4(7):437-44.
5. Demas A, Richard C, Bennani O, Heranval A, Cochin JP, Vaschalde Y. Transient global amnesia with bilateral hippocampal lesions: report of two cases. *Acta Neurol Belg*. 2020;120(6):1449-51.