Teaching NeurolImages: Cytotoxic Lesion of the Corpus Callosum Secondary to Influenza A

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Figure Brain MRI With and Without Contrast

(A) Axial fluid-attenuated inversion recovery: hyperintense signal in the splenium (white arrow). (B) Axial T1-weighted postcontrast: no enhancement. (C) Axial diffusion-weighted imaging: high signal of the splenium (white arrow), sometimes referred to as the "boomerang sign" if an inverted "V" shape is observed. (D) Axial apparent diffusion coefficient: low signal of the splenium (white arrow).

A 42-year-old man presented with respiratory symptoms, followed by ptosis, ageusia, dysarthria, and left hand weakness. MRI showed a lesion within the splenium of the corpus callosum (figure). Vascular and toxic-metabolic workup was unremarkable. Nasopharyngeal swab revealed Influenza A positivity. Symptoms fully resolved after oseltamivir treatment.

Cytotoxic lesion of the corpus callosum (CLOCC) can have several etiologies.¹ The dysfunction of callosal neurons and microglia is due to cell-cytokine interaction, which provokes increased cytokines and extracellular glutamate.¹ The patient's symptoms may be explained by viral invasion of the nervous system or indirect viral effects via humoral factors rather than directly by the CLOCC.^{2,3}

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Name	Location	Contribution
Sam I. Hooshmand, DO	Department of Neurology, Medical College of Wisconsin, Milwaukee, WI	Patient care, case report concept, design preparation of the first draft, and revision of the manuscript content
Kevin Chow, MD	Department of Neurology, Medical College of Wisconsin, Milwaukee, WI	Patient care and revision of the manuscript content
Ahmed Z. Obeidat, MD, PhD	Department of Neurology, Medical College of Wisconsin, Milwaukee, WI	Case report concept, critical revision of the manuscript content, and overall supervision

References

1. Starkey JM, Kobayashi N, Numaguchi Y, Moritani T. Cytotoxic lesions of the corpus callosum that show restricted diffusion: mechanisms, causes, and manifestations. *Radiographics* 2017;37:S62–S76.
2. Bengualid V, Berger J. Neurologic complications of acute influenza in adults: case report and review of the literature. *J Neurosci Clin Res* 2017;2:1.
3. Migita M, Matsumoto T, Fujino O, Takaishi Y, Yuki N, Fukunaga Y. Two cases of influenza with impaired ocular movement. *Eur J Pediatr Neurol* 2001;5:83–85.

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