



Acute Hemorrhagic Leukoencephalitis with COVID-19 Coinfection

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To the Editor: Neurological complications related to SARS-CoV-2 are increasingly recognized. Encephalopathy, meningoencephalitis, stroke, seizures, Guillain-Barré syndrome, and acute disseminated encephalomyelitis (ADEM) are the most frequent neurological complications of COVID-19 [1, 2]. Here, we report an unusual case of acute hemorrhagic leukoencephalitis (AHLE) secondary to COVID-19 coinfection.

An 8-y-old girl presented with fever, headache, left focal seizures followed by encephalopathy for 5 d. She was admitted to a peripheral hospital where lumbar cerebrospinal fluid (CSF) analysis revealed 740 cells, (94% neutrophils), 10 mg/dL glucose, and 224 mg/dL protein, and gram-positive cocci in gram stain. MRI brain showed multifocal discrete and coalescing lesions involving cerebral white matter and deep gray matter with diffusion restriction and interspersed microhemorrhages suggestive of AHLE (Supplementary Fig. S1). Her nasopharyngeal swab RT-PCR was positive for SARS-CoV-2. She was admitted in an unconscious state and required intubation, ventilation, antibiotics, and antiraised intracranial pressure measures. Investigations showed anemia (Hb - 9.2 g/dL) and thrombocytopenia (platelets 18000/ μ L), elevated C-reactive protein (CRP 141 mg/dL) and D-dimer levels (7014 ng/mL). Blood and CSF cultures were sterile, and scrub typhus serology was negative. She had progressive neurological deterioration and succumbed to the illness.

Neurological complications associated with COVID-19 are immune-mediated in nature, where MRI brain shows focal or confluent hyperintensities involving white matter with or without diffusion restriction and contrast enhancement [3]. Extensive necrotizing myelitis with microhemorrhages and

diffuse leukoencephalopathy with multiple microhemorrhages have been described with COVID-19 [2, 4]. Four pediatric cases of COVID-19 coinfections with other bacterial and viral agent with an unusual fulminant course and death have been reported [2]. Development of neurological symptoms within 2 wk of SARS-CoV-2 exposure, markedly elevated CRP, D-dimer levels, and thrombocytopenia were pointers toward systemic features of COVID-19 in the index case. The presence of SARS-CoV-2 coinfection contributed to extensive AHLE secondary to synergistic immune dysregulation.

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Declarations

Conflict of Interest None.

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