

Generalized status epilepticus as a possible manifestation of COVID-19

We present a 32-year-old male who brought to the emergency department with generalized convulsions. He was found by his brother and rushed to the hospital 40 minutes earlier having continuous tonic-clonic seizures. He had no past medical history (no chronic diseases or medication) or any symptoms of COVID-19; however, his brother reported that his roommate was diagnosed with COVID-19 1 day prior and went to a protective isolation institution.

On arrival, rapid examination confirmed continuing tonic-clonic status epilepticus.

Vital signs showed an axillary temperature of 37.1°C, pulse rate 110 beats per minute, sinus rhythm; respiratory rate 20 per minute; non-invasive blood pressure 125/80 mm Hg; oxygen saturation 96% (on room air). There was no evidence of recent, new head injury and his blood glucose was 7.0 mmol/L on bedside testing. Intravenous diazepam (10 mg) was administered twice but was ineffective. Intensive care unit team were contacted, and the patient was intubated and mechanically ventilated. Intravenous midazolam (5 mg) was subsequently administered, and the convulsions were aborted after that and he extubated after 36 hours. A computed tomography scan of the brain showed no lesion and clinical examination showed no new neurological deficit. Cerebrospinal fluid (CSF) was drawn revealing elevated protein (2212 mg/L) with normal glucose (3.9 mmol/L). CSF culture and herpes simplex virus polymerase chain reaction were negative. The chest X-ray was unremarkable. Laboratory analysis revealed lymphocytopenia (800 cells/mm³) with elevated C-reactive protein of 56.0 mg/L. Nasopharyngeal swabs specimen of the patient was then obtained and real time polymerase chain reaction (RT-PCR) assay was performed, which tested positive for SARS-CoV2.

The patient was transferred to the Medical COVID Unit and along with he was treated with a short course lopinavir-ritonavir and hydroxychloroquine. After initiation of the treatment, the patient remained afebrile and asymptomatic. A follow-up chest X-ray was negative for COVID pneumonia. Since then, the patient was continued on Levetiracetam 500 mg twice daily no other seizures occurred. During the hospitalization, he did not require oxygen therapy. Fourteen days later, he was discharged in stable condition, remaining afebrile after two negative swabs for SARS-CoV-2.

We report a case of generalized status epilepticus as a possible initial manifestation of COVID-19 infection. Even though status

epilepticus without a prior history of seizure or epilepsy is rare, different neurological manifestations, including seizures, are increasingly being documented with COVID-19 infection.^{1,2} To the best of our knowledge, less than a handful of these manifestations were labeled to be status epilepticus.²⁻⁴ The pathology of this manifestation was hypothesized by Hepburn et al⁵ to be multifactorial. They concluded that it was result of both the neurotropism of SARS-CoV-2 in addition to blood-brain barrier breakdown precipitated by proinflammatory cytokine reactions.⁵ Despite this, the treatment of this primary infection is largely supportive and preventive.

In short, with the emergence of the COVID-19 pandemic, even in the absence of fever or respiratory symptoms like in our patient, we advocate the role of epidemiological surveying as part of the medical history for neurological symptoms. Last but not least, despite the many faces of this disease, further research is needed to clearly elucidate the mechanism of neurological presentations in SARS-CoV-2 infection.

KEYWORDS

corona, COVID-19, epilepsy, seizure, status epilepticus

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CONFLICT OF INTEREST

None.

ETHICAL APPROVAL

Written and informed consent was obtained from the patient.

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