Since January 2020 Elsevier has created a COVID-19 resource centre with free information in English and Mandarin on the novel coronavirus COVID-19. The COVID-19 resource centre is hosted on Elsevier Connect, the company's public news and information website.

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Letter to the Editor

Meningoencephalitis without respiratory failure in a young female patient with COVID-19 infection in Downtown Los Angeles, early April 2020

To the Editor:

In a recent investigation by Wu et al. (2020), we have great interest and would like to report that meningoencephalitis can be the sole presentation in coronavirus (COVID-19) infections. Like the rest of the world, Downtown Los Angeles, California in the United States are experiencing an unprecedented massive outbreak of COVID-19 infections. Majority of the infected patients experienced mild to moderate symptoms, requiring supportive care with self-isolation at home. Unfortunately, there are significant and a rising number of patients requiring hospitalization. Among more severe cases, most patients experience respiratory distress leading to intubation and Intensive Care Unit (ICU) care. COVID-19 can also present itself in a variety of ways. According to Wu et al. (2020), they outlined their experience with nervous system involvement, which was recently acquired from the Wuhan, China outbreak. This affected the rest of the world as we are beginning to experience such deviation from our Emergency Room presentation first hand in Downtown Los Angeles, California, United States.

A young, obese 41-year-old female with a history of diabetes came into the Emergency Department with complaints of headache, fever and a new onset seizure. Her initial temperature was 100.5 F°, respiratory rate was between 12 and 24, O2 saturation was 99% on a 2-Liter per minute nasal cannula, blood pressure was 126/68 (range 108–152/41–84) and experienced no respiratory distress. She was awake, alert, lethargic but coherent. She followed commands well and was oriented to name, place, time and situation. Her neck was stiff and photophobia was present. She has non-focal body exam with normal tone, bulk and strength. Her sensory examination was normal. CT of the head without contrast was normal. Her cerebral spinal fluid (CSF) analysis revealed 70 white cells with 100% lymphocyte. CSF red cells was 65, protein was 100 and glucose was 120 (serum glucose was 200). Her chest x-ray was clear. She has peripheral white cells of 7.1. Chemistry was also normal. Her lactic acid was initially at 4.8. Liver and renal function were normal. There was a lack of CK or EKG abnormality.

She was admitted for management of viral meningitis. Antibiotics (Ceftriaxone and Vancomycin) that were initially started were subsequently discontinued on day three of hospitalization. Acyclovir was also discontinued upon negative PCR HSV results. Her temperature increased to 103.4 F° for over 48 h before returning back to normal. She was started on anti-epileptic medication. Her other vital signs remain relatively stable. Serial chest x-ray as well as a chest CT were normal. Neurologically, she experienced worsening encephalopathy with disorientation and hallucinations. She became lethargic and oriented to name only. There was no seizure recurrence after initiation medication of levetiracetam. EEG showed generalized slowing with no epileptic discharges. Secondary to confusion, she was agitated and frequently removed her nasal cannula. However, her O2 saturation consistently remained above 94% in room temperature. Due to her febrile illness upon presentation, COVID-19 testing was ordered. After 72 h, results came back positive. She was started on hydroxychloroquine. Her mentation began to improve by day five of admission. She was able to ambulate, eat and use the bathroom. Her hallucinations remained intermittently.

By the day of this writeup submission (day nine of admission), we are still unable to send CSF specimen for PCR testing through local commercial, government or academic laboratories to confirm for COVID-19. Hence, we cannot directly prove the existing of COVID-19 virus in the CSF. Wu et al. (2020) has suggested the nervous system involvement (viral encephalitis) as additional to the respiratory failure and systemic disease. In this case, we have observed a COVID-19 infection presenting as an isolated meningoencephalitis without respiratory involvement.

Appendix A. Supplementary data

Supplementary data to this article can be found online at https://doi.org/10.1016/j.bbi.2020.04.024.

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Wu, Y., Xu, X., Chen, Z., Duan, J., Hashimoto, K., Yang, L., Liu, C., Yang, C., 2020. Nervous system involvement after infection with COVID-19 and other coronaviruses. Brain, Behav., Immun. https://doi.org/10.1016/j.bbi.2020.03.031.

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