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A Rare Case of COVID Encephalitis in a Vaccinated Patient

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INTRODUCTION

SARS-CoV-2 infection is known to cause primarily respiratory symptoms, however, neurological disorders such as anosmia and stroke have been seen. Encephalitis is a rare complication of COVID-19 with a reported incidence of less than 1%¹. Most patients develop both COVID-19 symptoms and encephalitis symptoms during the same period. In addition, the majority of reports are from patients with no prior vaccination. Here, we present a case of encephalitis 2 weeks after mild COVID-19 in a fully vaccinated male.

CASE DESCRIPTION

A 68-year-old Hispanic male was brought to the ED due to new onset gaze deviation, generalized tonic posturing, facial drooping, and unresponsiveness. Days prior to his symptoms, family members reported he was found staring blankly, confused, disoriented, and experienced multiple falls. The patient had a positive COVID-19 PCR exam 2 weeks prior to developing the symptoms, despite completing two doses of Moderna vaccine 6 months prior. His sole symptom at the time was a cough.

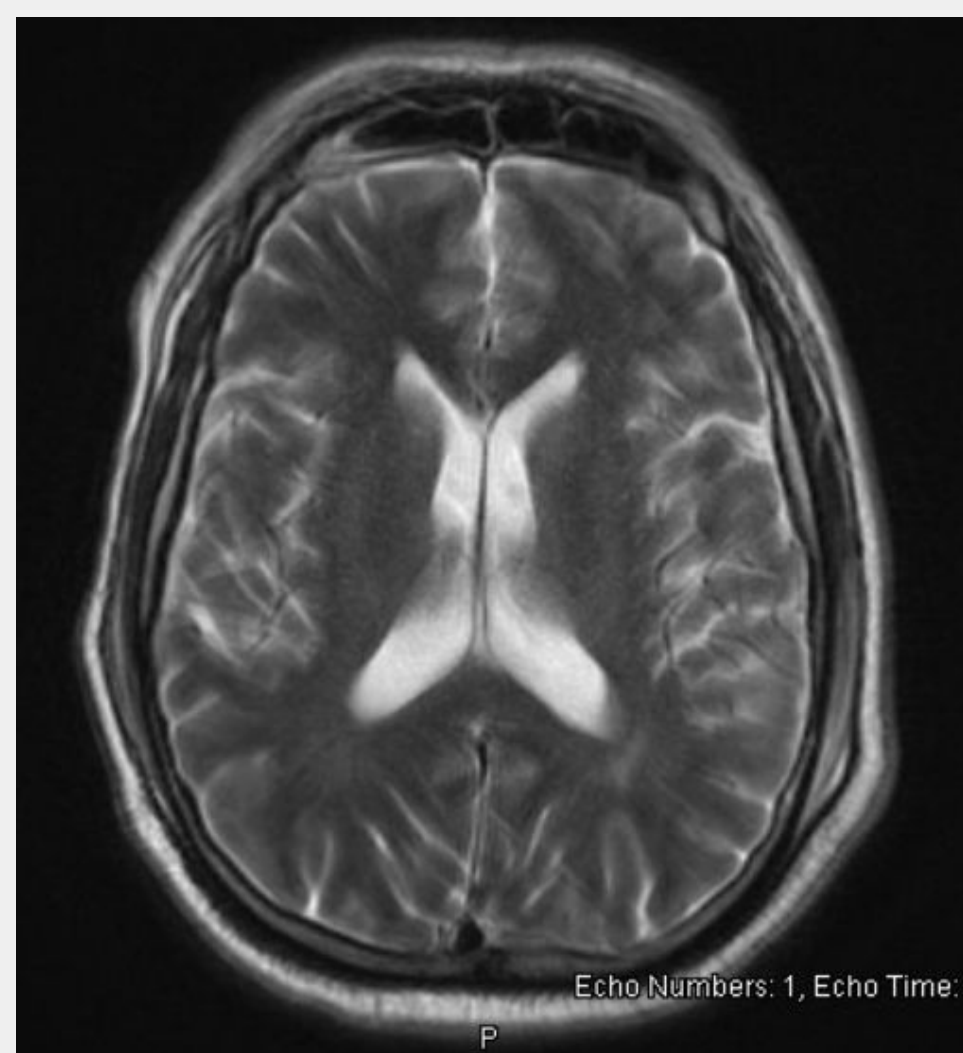


Image 1. MRI with no evidence of acute infarction

CASE CONTINUED

At admission, SARS-CoV-2 PCR was negative. NIHSS was 15. He was intubated and CT head was negative for active bleeding. tPA was administered for suspected ischemic stroke, however brain perfusion CT and MRI ruled out large vessel occlusion (Image 1). He was started on Levetiracetam for seizures; 6 days later, Valproate was added. He remained intubated due to an altered state of mind, airway protection, and continuous seizure activity. 24-hour cEEG showed: slower background with multiple sedating agents on.

CSF Analysis	
Appearance	Clear
Glucose	116 mg/dL H
Protein	73 mg/dL H
WBC	26 / uL H
Lymphocytes	87 %
Neutrophils	9 %
Macrophages	4 %
VDRL	Non reactive
Anti-NMDA-receptor antibody	Negative
Anti-LGI1 antibody	Negative

Other results	
CSF microbiology	Negative for CMV, HSV 1,2,6, <i>N. meningitidis</i> , VZV, <i>Cryptococcus</i> , <i>S. pneumonia</i> , <i>Sagalactiae</i> , <i>L. monocytogenes</i> , <i>H. influenzae</i> , Enterovirus, <i>E.coli</i> .
Serologies	Negative for ANCA, ANA, dsDNA, Anti-Proteinase-3 Ab.

Post-COVID encephalitis was suspected and plasmapheresis exchange (PLEX) therapy was started. He completed five treatments of PLEX with marked improvement after therapy. Given the significant clinical improvement, he was successfully extubated. Patient's neurological status progressively improved, reaching closer to his baseline status. He was transferred to medical floor and eventually to acute rehab.

DISCUSSION

Post COVID-19 encephalitis should be in the differential for patients with new onset altered mental status (AMS) and prior history of recent SARS-CoV-2 infection. Patients presenting with encephalitis should be tested and questioned for COVID diagnosis, even in those fully vaccinated. The length of stay may be reduced with treatments targeted towards COVID encephalitis and shorter delay in presentation to treatment². Though a COVID CSF PCR was not done in this case, to date, there are no definitive reports of SARS-CoV-2 detection in CSF³.

CONCLUSION

This case supports the use of PLEX therapy, as there are multiple other options that are still being studied for the limited cases reported.

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