Muddy Waters— Depression, ECT, and Autoimmune Encephalitis Post COVID-19



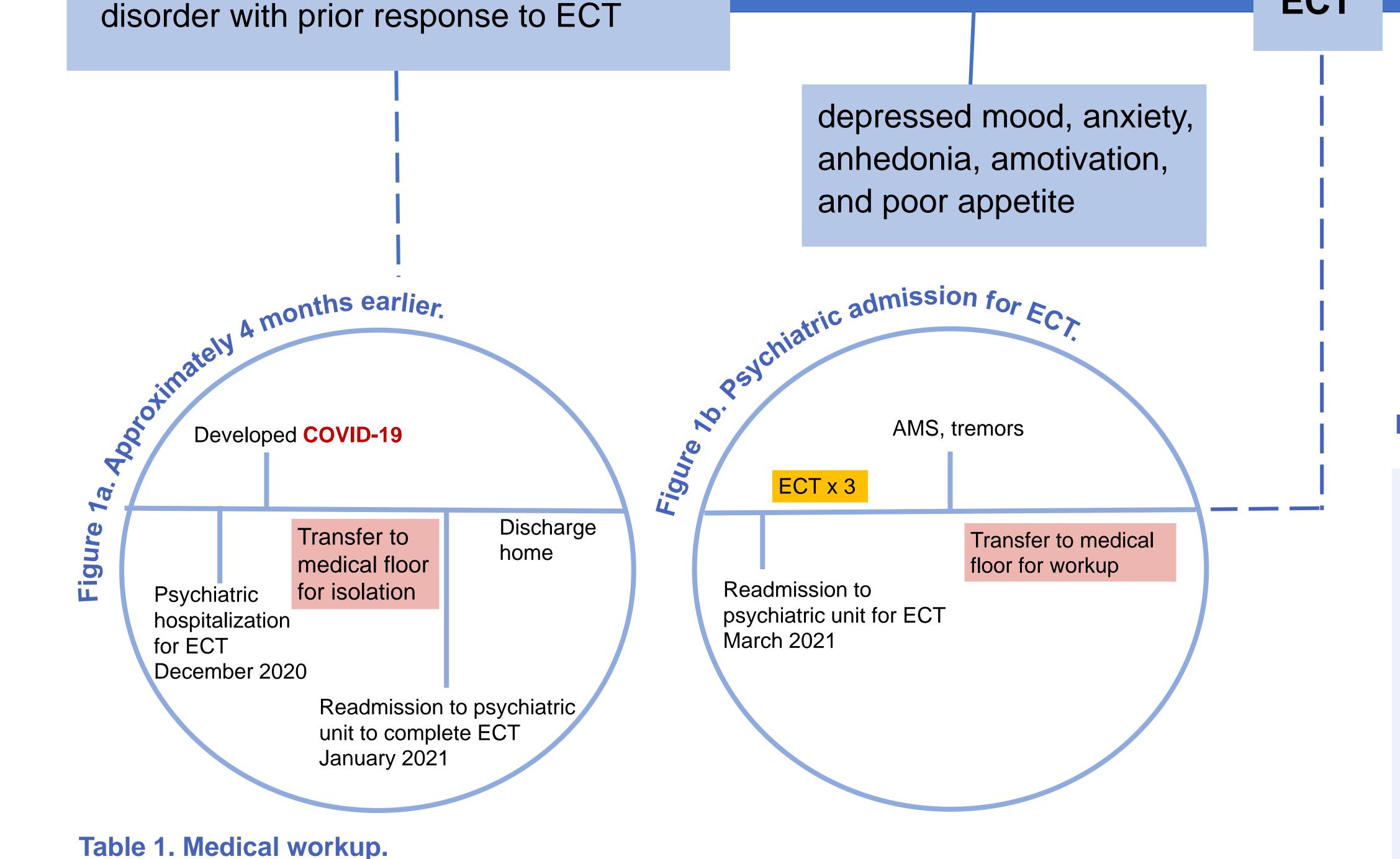




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We describe an unusual case of altered mental status in an elderly patient who recently recovered from SARS-CoV-2 and underwent inpatient ECT for treatment-refractory depression. Her presentation, initially considered delirium secondary to ECT, resulted in a diagnosis of autoimmune encephalitis (AE) after extensive neurological workup. SARS-CoV-2 infection has been reported to trigger autoimmunity, including various 79-year-old female with a history of encephalitides (Payus, 2021). recent SARS-CoV-2 infection and Return to baseline and treatment-resistant major depressive **ECT** discharge





Test Ordered	Result
CBC	WNL
Urinalysis	Negative for infection
BMP	WNL
TSH and Vit B12	WNL
LFTs and venous ammonia level	WNL
CXR	Incidental 4 mm right upper lobe nodule, plan made for outpatient chest CT
RPR	Negative
MRI	Generalized age-related atrophy with nonspecific mild B/L white matter disease possibly due to chronic small vessel ischemic disease
EEG	excessive slowing, voltage suppressions, periodic lateralized epileptiform discharges, consistent with encephalopathy
CT Head	some effacement concerning for possible cerebral artery dissection
CT Angio Head and Neck	no evidence of dissection, aneurysm, or stenosis
Lumbar puncture	Negative for viral infection, CJD
Paraneoplastic panel, serum	Negative
Voltage-gated potassium serum antibodies	Negative
neuronal AChR ganglionic (alpha-3) serum antibodies	Positive

prolonged confusion, waxing and waning mental status, and generalized tremors

Figure 2. Differential diagnoses.

Major depressive disorder Delirium stroke/ TIA seizure Neurologic hypothyroid **Endocrine** UTI infectious encephalitis neurosyphilis Infection autoimmune encephalopathy **Autoimmune** latrogenic hepatic encephalopathy B12 deficiency uremia Metabolic rapidly progressive dementia | Creutzfeldt-Jakob disease **Degenerative** paraneoplastic syndrome Malignancy

IVIG x 5 days

Discussion

After an extensive medical workup, we uncovered our patient had autoimmune encephalopathy (AE) secondary to alpha-3 ganglionic acetylcholine receptor antibodies.

This form of AE is associated with dysautonomia, seizures and malignancy (Bansal 2019).

> Our patient had no history of malignancy and experienced predominantly neuropsychiatric symptoms, which are less common in this AE subtype (McKeon, 2009).

Nonetheless, she did have a recent history of COVID-19 infection, which has been implicated in the development of immune-mediated neurologic syndromes. Furthermore, our patient's depressive presentation was predominantly comprised of apathy and neurovegetative symptoms, which could also be informed by her prior COVID-19 infection and AE.

Conclusion

Prior SARS-CoV-2 infection may have played a role in our patient's development of AE. As AE can be a confounding diagnosis for delirium and depression, this case highlights the importance of maintaining a broad differential, even in cases where psychiatric symptoms are predominant.

References

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