



# Acute Fulminant Cerebral Edema Presenting as Refractory Status Epilepticus in a SARS-CoV-2 PCR-Positive Child Without Pulmonary Involvement: Correspondence

Josef Finsterer<sup>1</sup>

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*To the Editor:* Regarding the Article by Botre et al. Published in IJP [1], the main limitation is the absence of autopsy to uncover the cause of acute fulminant cerebral edema (AFCE). Because AFCE is per definition due to encephalitis, the patient should have been examined for all possible bacterial, viral (including HIV and SARS-CoV-2), fungal, parasitic, and plasmodial causes of infectious encephalitis. Because the patient was also SARS-CoV-2 positive, it is conceivable that AFCE was due to SARS-CoV-2-related autoimmune encephalitis (AIE), which has been repeatedly reported [2]. AIE can go along with/without cerebrospinal fluid (CSF) antibodies against more than 20 cerebral targets [3]. If CSF is still available, these autoantibodies (e.g., MDPA, AMPA, GABA-B, GLI1) should be determined. Regarding the cause of AFCE, one should know whether multisystem inflammatory syndrome in children was considered and adequately ruled out.

Regarding imaging, one should know which MRI-modalities were applied and whether contrast medium was given. Encephalitis is characterised by enhancing cerebral lesions in most cases. Because SARS-CoV-2-related encephalitis is attributed to immunological reactions (cytokine storm), we should know whether CSF cytokines, chemokines, glial factors, or 14-3-3 were elevated.

It is also crucial to rule out cerebrovascular causes of AFCE [e.g., stroke, venous sinus thrombosis (VST)] by performing magnetic resonance angiography, MR venography, and application of DWI and ADC sequences. Stroke and VST are common manifestations of neuro-COVID.

Regarding treatment, one should know whether glucocorticoids, immunoglobulins, or plasmapheresis were

considered or tried as an individual therapeutic attempt. What kind of anti-edematous treatment for AFCE was applied? What kind of anti-seizure drugs (ASDs) were given to stop seizures?

The patient had seizures already before age 9 y. Was the history positive for previous meningo-encephalitis, fever cramps, birth trauma, or traumatic brain injury? Was the family history positive for epilepsy? Is it conceivable that AFCE was simply the complication of RSE and unrelated to SARS-CoV-2? Prolonged seizure activity is commonly complicated by cerebral edema [4].

## Declarations

**Conflict of Interest** None.

## References

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✉ Josef Finsterer  
ffigs1@yahoo.de

<sup>1</sup> Neurology and Neurophysiology Center, Postfach 20, Vienna 1180, Austria