

Infectious Encephalitis can Only Be Diagnosed after Identifying the Causative Infectious Agent

Mehri Sounira¹ and Josef Finsterer²

¹PhD, Biochemistry Laboratory, LR12ES05 "Nutrition-Functional Foods and Vascular Health", Faculty of Medicine, Monastir, Tunisia, ORCID 0000-0002-2221-7193

²MD, PhD, Neurology & Neurophysiology Center, Vienna, Austria, ORCID: 0000-0003-2839-7305

Keywords: encephalitis, infection, SARS-CoV-2, cerebral MRI, tuberculosis.

LETTER TO THE EDITOR

We read with interest Shaik, *et al.*, article about three patients (14-year-old male (patient 1), 20-year-old female (patient 2), 45-year-old female (patient 3)) with bilateral thalamic hyperintensities in the diffusion-weighted imaging (DWI). [Shaik, R. S. *et al.*, 2023] These thalamic lesions were attributed to Dengue or leptospirosis (patient 1), to tuberculous meningitis (patient 2) and to SARS-CoV-2 infection (SC2I) (patient 3). [Shaik, R. S. *et al.*, 2023] The study is excellent but some points need discussion.

The first point is that patient 1 was not subjected to autopsy. [Shaik, R. S. *et al.*, 2023] To determine the cause of encephalitis, an autopsy including the brain and spinal cord, cerebrospinal fluid (CSF) studies, and histological and immune-histological examinations would have been mandatory. Did the patient have Dengue fever, leptospirosis, or both? Bilateral DWI hyperintense thalamic lesions have not been described in leptospirosis.

A second point is that suspicion of tuberculous meningitis in patient 2 was not confirmed by PCR for *Mycobacterium tuberculosis*, Löwenstein culture or quantiFERON test [Shaik, R. S. *et al.*, 2023]. Did the patient have tuberculosis in another organ? Was the family history positive for tuberculosis? Starting tuberculostatic therapy without an established diagnosis can be dangerous because some of the tuberculostatic drugs can be toxic.

A third point is that the list of central nervous system (CNS) infectious diseases with bilateral DWI hyperintense thalamic lesions is incomplete. Not mentioned were herpes simplex encephalitis, [Sarton, B. *et al.*, 2021] Japan encephalitis, [Arahata, Y. *et al.*, 2019] neurosyphilis, [Yao, Y. *et al.*, 2019] and West Nile virus encephalitis.

A fourth point is that the type of aphasia patient 3 presented was not described in detail. Knowing the type of aphasia is crucial for assessing whether the patient was principally able to consent to a lumbar puncture or not. In general, CSF examination is mandatory in patients with suspected meningo-encephalitis. Differential diagnoses can only be completely ruled out through appropriate CSF examinations and appropriate treatment can only be initiated once the pathogen has been identified.

A fifth point is the discrepancy regarding the description of patient 1's consciousness. [Shaik, R. S. *et al.*, 2024] In the first paragraph the patient is described as non-responsive (comatose), whereas in the next paragraph the patient opened his eyes to painful stimuli (soporose). [Shaik, R. S. *et al.*, 2023] This discrepancy should be resolved. Was the patient comatose or soporose?

In summary, the excellent study has limitations that should be addressed before final conclusions are drawn. Clarifying the weaknesses would strengthen the conclusions and improve the study. Infectious meningo-encephalitis should only be diagnosed after identifying the causative infectious agent.

REFERENCES

1. Shaik, R. S., Manorenj, S., Marupaka, S. K. & Ara, T. "Diffusion Restriction in Bilateral Thalami: Beyond Artery of Percheron Infarct." *Neurol India*, 71.4 (2023): 754-759.
2. Sarton, B., Jaquet, P., Belkacemi, D., de Montmollin, E., Bonneville, F. and Sazio, C, et al. "Assessment of Magnetic Resonance Imaging Changes and Functional Outcomes Among Adults With Severe Herpes Simplex Encephalitis." *JAMA Netw Open*, 4.7 (2021): e2114328.
3. Arahata, Y., Fujii, K., Nishimura, T., Uchida, T., Kitazawa, K. & Honda, A. "Longitudinal

magnetic resonance imaging changes in Japanese encephalitis." *Brain Dev*, 41.8 (2019): 731-734.

4. Yao, Y., Huang, E., Xie, B. & Cheng, Y. "Neurosyphilis presenting with psychotic symptoms and status epilepticus." *Neurol Sci*, 33.1 (2012): 99-102.

Source of support: Nil; **Conflict of interest:** Nil.

Cite this article as:

Sounira, M. and Finsterer, J. "Infectious Encephalitis can only be diagnosed after Identifying the Causative Infectious Agent." *Sarcouncil journal of Medical sciences* 3.6 (2024): pp 46-47.