Neurosurgical Forum LETTERS TO THE EDITOR

Diagnosis of subarachnoid neurocysticercosis

TO THE EDITOR: We read with great interest the article by Vieira et al.¹ (Vieira E, Faquini IV, Silva JL Jr, et al. Subarachnoid neurocysticercosis and an intracranial infectious aneurysm: case report. *Neurosurg Focus*. 2019;47[2]:E16). The authors describe the unique case of a patient who had a typical subarachnoid hemorrhage (SAH) due to an intracranial infectious aneurysm (IIA) related to subarachnoid neurocysticercosis (SNCC), which the authors treated surgically. The total resolution of the aneurysm 6 months after treatment shows the effectiveness of surgical management in a patient with SAH due to an IIA.¹ Herein we would like to recommend further patient history-taking to assess risk factors related to infection and to educate the patient in the interest of relapse prevention. A blood laboratory workup may provide additional support to the diagnostic approach reported by Vieira et al.¹ We also suggest the addition of other diagnostic measures that may provide a different perspective, as cases like this could present in tropical and developing countries, especially in areas of high disease prevalence and endemicity.

Cysticercosis and rupture of an aneurysm may present as the result of multifaceted predisposing factors such as poor hygiene, consumption of undercooked meals, and history of a parasitic infection such as taeniasis. As such, it is imperative to obtain a detailed history to assess potential underlying conditions that may predispose patients to SNCC. Furthermore, education related to prevention through patient hygiene and cooking habits is indicated to reduce the recurrence rate.

Because a parasitic infection elicits a particular pathway of immune system activation, a simple test of differential count may show the eosinophilic manifestations. Subsequently, such testing would also provide data indicating the severity of infection that could lead to IIA.

Although MRI provides better imaging and more accurate localization in diagnosing SNCC, another alternative screening method through laboratory screening tests for the detection of cysticercal antigen or antibodies may be useful in diagnosing SNCC in a limited clinical setting where MRI is not available.² O'Connell et al.³ reported the

development of a novel assay for the diagnosis of SNCC and ventricular NCC. This sensitive and specific quantitative polymerase chain reaction (qPCR) test for *Tsol13R*, a highly repetitive sequence in the *Taenia solium* genome, showed 81.3% and 100% sensitivity in the plasma and CSF, respectively, of symptomatic patients.³

In addition to their use in diagnosis, tests like the one reported by O'Connell et al.³ may also aid in follow-up and disease monitoring. Adequate pharmacological anthelmintic therapy accompanying surgical procedures is the key to the complicated treatment of SNCC, in which IIA and subsequent SAH may occur.⁴ However, inadequate treatment of SNCC may lead to a relapse of symptoms. Whether conservative treatment was implemented in the study reported by Vieira et al.¹ remains unclear. Additional laboratory profiles—hematologic and immunologic—ought to be added to support the rationale of whether or not the patient needed conservative treatment after surgery. Also, an adequate follow-up strategy needs to be elaborated for this study. The qPCR assay can be used to differentiate patients with active from those with resolved SNCC, with predictive abilities to distinguish active from cured disease of 94.4% in CSF and 86.7% in plasma.⁴ Therefore, in addition to digital subtraction angiography (DSA), qPCR may assist physicians in monitoring disease activity and preventing relapse of unwanted symptoms.

Taken together, the implementation of available preoperative approaches for diagnosing SNCC is recommended in addition to histopathological pattern analysis of the removed cysts after surgical management. The study report by Vieira et al. would be enhanced by the inclusion of patient history and blood workup results. Also, an alternative follow-up method after surgery may be implemented to ensure the patient's clinical improvement.

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Disclosures

The authors report no conflict of interest.

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Response

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