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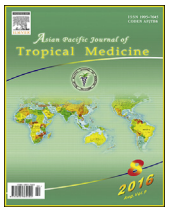

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State of the art in neurocysticercosis: Imaging and epidemiology

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Dear Editor,

Accurate diagnosis of neurocysticercosis (NCC) is a challenge. A recent case report published by Rizvi *et al.* reported that the diagnosis of NCC in their patient was based on a multilobulated cystic mass in the posteromedial left temporal/occipital region with surrounding edema seen on computed tomography (CT) and magnetic resonance imaging (MRI) [1]. This sole diagnostic criterion may be doubtful when considering that parenchymal and extraparenchymal NCC are practically distinct entities from clinical, immunological, and pathophysiological points of view [2]. Although CT and MRI are useful in diagnosis of NCC, their utility varies depending mainly upon the parasite evolutionary stage (vesicular, colloidal, granular-nodular, and calcified phases). It has been proposed that visualization of the scolex inside the cysts is a characteristic image of parenchymal NCC [3]; however, extraparenchymal NCC is more difficult to detect by imaging because the attenuation and signal intensity of the cyst's content is similar to that of CSF. The cystic wall is usually not detected, and the cysts frequently lack a scolex. MRI techniques such as fluid-attenuated inversion recovery (FLAIR), as well as 3D sequences such as Fast Imaging Employing Steady-state Acquisition (FIESTA), 3D Constructive Interference in SteadyState (3D-CISS), and 3D SPoiled Gradient Recalled echo sequences (SPGR), have proven to be useful in evaluating ventricular cysts and permit better detection of the parasites [4]. We would recommend that the patient case reported by Rizvi *et al.* be re-evaluated using these new MRI techniques in order to confirm the diagnosis.

Treatment of NCC is complex and should be individualized according to the location and viability of the parasites [2]. Symptomatic treatment is based upon clinical manifestations: antiepileptic drugs for seizures, mannitol for high intracranial pressure, and analgesics for headache. Steroids are often administered to reduce inflammation; however, optimal dose, duration, and timing of administration and discontinuation remain unknown. Antihelminthic drugs, such praziquantel and albendazole, (separately or combined) are currently used to kill the parasite. Clinical trials of parenchymal NCC treatment using these drugs have shown disappearance of parasites in about half of the patients; while there are no randomized controlled trials providing evidence for treatment of extraparenchymal NCC so far [2]. Neurosurgical intervention should be considered for hydrocephalus requiring ventriculoperitoneal shunt or intraventricular excision of a cyst. In the case report by Rizvi *et al.*, at the very least it is important to know how (and if) the cystic mass responded to antihelminthic treatment on imaging, as this would help to further support a diagnosis of NCC.

NCC is still an important public health issue worldwide and is widely prevalent in many countries with high poverty in sub-Saharan Africa, Asia, and Latin America. Indeed the number of cases in non-endemic countries has also increased due to international travel and relocation [2]. Rizvi *et al.* include a figure of "the geographic distribution of NCC," which is incorrect and not applicable to the epidemiology of NCC. The World Health Organization [5] has recently published an updated map of the approximate distribution of *Taenia solium*/cysticercosis (Figure 1) infection, showing a more accurate distribution of endemic and suspected endemic areas of this parasitic disease around the world, based on current and reliable epidemiological data.

Conflict of interest statement

We declare that we have no conflict of interest.

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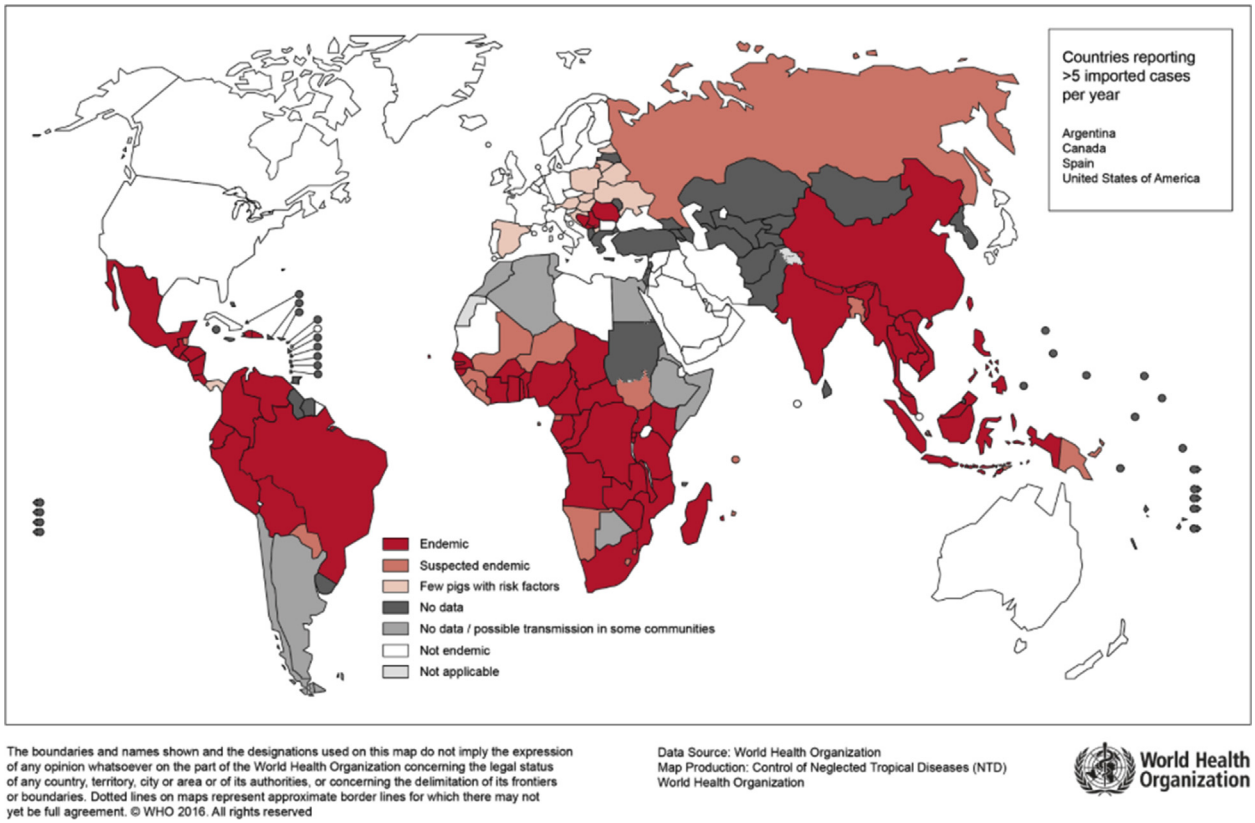

Figure 1. Endemicity of *Taenia solium* infection, 2015.

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