

Letters to the Editor

Diagnosis of Human Cysticercosis and *Taenia asiatica*

Dear Sir:

Zimic and others¹ evaluated the utility of a protein fraction with cathepsin L-like activity from *Taenia solium* in the diagnosis of human cysticercosis.

To determine cross reactions, sera from infected patients with a single helminth were used. Specifically, and in addition to some nematode species, the tapeworms *Hymenolepis nana*, *Taenia saginata*, and *Echinococcus granulosus*, were tested. The highest specificity was reached in the Western immunoblot assay with a 98%.

Since the 90s, a third human species, *Taenia asiatica*, has been recognized as a cause of human taeniasis. *Taenia asiatica* is an important human parasite at least in eight Asian countries, with a prevalence of up to 21% and causing annual economic losses of about US\$40,000,000 in those countries.² This third species exhibits a *T. saginata*-like morphology, but a *T. solium*-like lifecycle (pigs are the intermediate hosts for *T. asiatica*). To date two relevant knowledge gaps concerning *T. asiatica* remain: it is still not clear whether *T. asiatica* causes human cysticercosis, and whether this parasite is also distributed out of Asia.

Concerning the geographic distribution of *T. asiatica*, the species was confounded with *T. saginata* for more than 200 years in Asian countries,³ and the same could currently occur in the rest of the world unless molecular diagnostic methods are used because the morphology of *T. asiatica*'s proglottids is indistinguishable from that of *T. saginata*. It is well known that, for instance, *Diphyllobothrium nihonkaiense* originally endemic in Japan, is an emerging parasite in European countries after molecular techniques were used in its diagnosis.⁴ Apparently, there are no reasons why globalization should have excluded *T. asiatica*, because it is a tapeworm with cosmopolitan hosts with migratory movements, and it is not a sporadic parasite being more common than *T. solium* or *T. saginata*.^{5,6}

Concerning human cysticercosis, WHO/FAO/OIE maintain that *T. asiatica* probably does not cause this disorder because of its molecular similarities with *T. saginata*, the species that does not cause it.⁷ However, *T. saginata* does not produce pig cysticercosis but *T. asiatica* does, because the pig and not cattle is its intermediate host despite these similarities. Therefore, humans are perfect candidates to occupy a place on the list of *T. asiatica* intermediate hosts.⁸

To resolve both questions, i.e., *T. asiatica*'s definitive geographic distribution and its capacity to produce human cysticercosis, it would be necessary to develop immunodiagnostic methods 100% specific for both species *T. solium* and *T. asiatica*. Currently, there is no immunologic test to distinguish *T. solium* from *T. asiatica* cysticercosis, because it has been demonstrated that *T. asiatica* cross-reacts with *T. solium* in

the enzyme-linked immunoelectrotransfer blot (EITB) 100% specific for *T. solium*.⁹ Consequently, in positive results of any currently used immunologic tests (in humans or pigs) for *T. solium*, *T. asiatica* should never be excluded.

Therefore, we suggest to the authors of this interesting article and to any other scientist who is involved in the design of new species-specific immunologic tests for *T. solium*,¹⁰ that *T. asiatica* should be included in the cross-reaction studies to evaluate the true specificity of the test.

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