

# A specific antigen–detection ELISA for the diagnosis of human neurocysticercosis

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## Abstract

An enzyme–linked immunosorbent assay (ELISA) for the detection of antigen secreted by viable *Taenia solium* metacestodes (Ag–ELISA) was applied to 43 pre–treatment and 47 follow–up cerebrospinal fluid (CSF) samples from Peruvian patients with neurocysticercosis demonstrated by computed tomography and enzyme–linked immunoelectrotransfer blot assay. The sensitivity of the assay was 86%. Negative pretreatment results in the Ag–ELISA test were restricted to patients with only a single live cyst or only enhancing lesions. Patients with hydrocephalus had higher levels of circulating antigen. There was no difference between antigen levels in CSF taken before and immediately after treatment (day 14). Levels of parasite antigen were significantly positively correlated with the number of live cysts detected by tomography and were also proportional to the number and intensity of antibody reactions recognized by the immunoblot diagnostic test. In contrast, there was a negative correlation with the number of enhancing lesions revealed by tomography, supporting the hypothesis that enhancing lesions correspond to a terminal, moribund stage of the parasite. The use of antigen–detection tests specific for viable metacestodes has immediate utility in the clinical context, not only providing important information on the viability of the parasites but also leading to an improved understanding of the pathogenesis of neurocysticercosis before and after drug treatment.

**Keywords:** neurocysticercosis, *Taenia solium*, diagnosis, antigen detection, enzyme-linked immunosorbent assay

**Topic:** pharmacotherapy, computed tomography, enzyme-linked immunosorbent assay, hydrocephalus, antigen assay, antigens, cysts, diagnostic techniques and procedures, follow-up, immunoblotting, neurocysticercosis, parasites, antibodies, cerebrospinal fluid, diagnosis, enzymes, taenia solium

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