

## ANTIGENS OF *TOXOPLASMA GONDII* IN A AIDS PATIENT URINE DETECTED BY COAGGLUTINATION

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Toxoplasmic encephalitis (TE) has been reported with increasing frequency in patients with acquired immunodeficiency syndrome (AIDS). This life-threatening opportunistic infection may benefit from early therapy (T. U. Westblom & R. B. Belshe, 1988, *Scan. J. Infect. Dis.*, 20: 561-563), however, the diagnosis of TE is difficult to establish (B. J. Luft & J. S. Remington, 1988, *J. Infect. Dis.*, 157: 1-6). At present, the most reliable diagnostic procedure is the demonstration of the parasite in the Central Nervous System (CNS) or the cerebrospinal fluid. The detection of toxoplasma antigens in biological fluids is a new promising method for the rapid diagnosis of TE (A. Hassl et al., 1988, *Int. J. Microbiol. Hyg.*, 270: 302-309). We have recently reported the use of a coagglutination assay to detect toxoplasma antigens in mice urine (A. Fachado et al., 1990, *Mem. Inst. Oswaldo Cruz*, 85: 65-68). Briefly a *Staphylococcus aureus* suspension heat killed and sensitized with antitoxoplasma rabbit hyperimmune serum was mixed with a drop of urine in a white cardboard for 2 min. The agglutination was evident when toxoplasma antigens were present. We here report the diagnosis of TE in a patient with AIDS using the same method.

A 37-year-old white female was admitted to the Institute of Tropical Medicine "Pedro Kouri" with a one-week history of headache, weakness and diplopia. Physical examination revealed confusion and generalized hyporeflexie. The patient's husband had recently died from AIDS. Computerized axial tomography (CAT) showed low-density lesions in both cerebral hemispheres. Serology for *Toxoplasma gondii* was done by an indirect immunofluorescent technique, using formaline fixed tachyzoites and anti-IgG and anti-IgM anti-

sera. Anti-toxoplasma IgG antibodies were also detected by an ultramicroELISA test (E. Alberti et al., *Rev. Cub. Med. Trop.*, submitted for publication). Antigens of *T. gondii* were demonstrated in the urine by the coagglutination (CoA) assay recently developed in our laboratory (A. Fachado et al., *loc. cit.*). When the CoA was positive, western-blotting, using a polyclonal mouse antibody against homogenized whole *T. gondii* trophozoites, showed two bands (75 Kda and 25 Kda), indication that *T. gondii* antigens are present in urine. When CoA was negative no bands were observed.

The more relevant clinical, radiographic and laboratory data on admission and during the follow-up of the patient are summarized in Table. One can see that the CoA assay had similar diagnostic value as Western-blotting and more than antibody detection test employed. It was positive on admission 26 March 1989, became negative when the patient status improved and positive again on 3 March 1990, before the neurological clinical symptoms has reappeared, remaining positive until the patient's death. The autopsy confirmed the presence of *T. gondii* in both cerebral hemispheres.

Although the number of patients studied by this method should be increased, our results, as well as other previously published, suggest that the detection of *T. gondii* antigens may be a powerful tool for the diagnosis of TE and the follow-up of asymptomatic AIDS patients. Furthermore, CoA is a simple diagnostic procedure that does not require laboratory equipment and is easy to perform with minimal training.

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TABLE  
Relevant data on the follow-up of the AIDS patient

Date	Blood tests			Urinary tests		Clinical, and radiographic features
	IgG-IFA	IgM-IFA	IgG-UMELISA <sup>a</sup>	Coagglutination	Western blot	
26.3.89	1:32	—	42	+	2 bands 75 kDa 27 kDa	Symptoms, signs and CAT scan suggestive of toxoplasmic encephalitis. Pyrimetamine Sulphadiazine initiated.
22.6.89	1:64	—	38	—	no bands	Asymptomatic, normal CAT scan. Treatment continues.
29.8.89	1:32	—	45	—	no bands	Asymptomatic, normal CAT scan, patient withdraw treatment.
3.3.90	1:32	—	45	+	2 bands 75 kDa 27 kDa	Asymptomatic, CAT scan evidence of encephalitis. Treatment was reintroduced.
14.4.90	1:16	—	40	+	2 bands 75 kDa 27 kDa	Clinical and CAT scan evidence of toxoplasmic encephalitis. Treatment continues. Diarrhea due to <i>Cryptosporidium</i> . Patient condition rapidly deteriorates and the patient dies.

IFA: immunofluorescent assay.

UMELISA: ultramicroanalytic Enzyme Linked Immunosorbent Assay.

Between the 29.8.89 and the 3.3.90 the patient remained asymptomatic. Blood and urinary tests performed every 45 days were negatives.

<sup>a</sup>: expressed as international units (IU). More than 100 IU suggest acute toxoplasmic infection.

CAT: computerized axial tomography.