

Investigation of *Toxoplasma gondii* and *Neospora caninum* in necropsied nervous tissue of HIV/AIDS patients morphologically diagnosed as neurotoxoplasmosis

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Toxoplasma gondii and *Neospora caninum* are protozoa belonging to the Apicomplexa phylum, and are closely correlated due to ultrastructural and genetic similarities, with toxoplasmosis and neosporosis presenting similar clinical and pathological symptoms. Although little is known about the epidemiology of *N. caninum* infections in humans, serological studies have evidenced the presence of antibodies for this protozoan in immunocompetent and immunodepressed individuals, demonstrating a possible human susceptibility to this parasite. The aim of this study was to evaluate the presence of *T. gondii* and/or *N. caninum* DNA fragments in brain samples from HIV/AIDS patients with the morphological diagnosis of neurotoxoplasmosis necropsied at the Clinic Hospital of the Triângulo Mineiro Federal University (HC-UFTM). A total of 85 cases were analyzed. Of these, 49 were selected for PCR, since only 49 cases showed *T. gondii* infection characteristics based on the microscopic analysis of the necropsy slides. For DNA extraction, approximately 10µm thick sections were taken from blocks of paraffin-embedded nerve tissue and stored in eppendorf tubes. DNA extraction was performed using the MagaZorb® DNA Mini-Prep Kit, following the manufacturer's protocol for paraffin-extracted tissue extraction. *T. gondii* DNA scanning was performed by nested-PCR, amplifying a fragment of approximately 97bp from the B1 gene. Two specific primers (Np21plus and Np6plus) that amplify a fragment of approximately 337bp from the Nc-5 genomic region were used for *N. caninum* DNA. Of the 49 analyzed brain tissue samples, 12 amplified the specific *T. gondii* fragment, confirming the morphological diagnosis of neurotoxoplasmosis. However, 37 samples were not amplified by nested-PCR, which can be explained by the low amount of DNA obtained during the extraction process or by the fact that DNA recovery from paraffin-embedded tissues is still difficult to obtain. *N. caninum* DNA was not found in any of the analyzed nerve tissue samples, and further studies are needed to evaluate neosporosis in humans.