

16. **FREQUENCY OF CYSTS BY IMMUNOFLUORESCENCE ASSAY IN HUMAN BRAIN TISSUE OF SUICIDE, TRAFFIC ACCIDENT AND HOMICIDE DECEDENTS**

Karol J. Isaza¹, Santiago Guerrero V¹, Laura M. García G¹, Jennifer Nessim², Miguel Baquero³, Jorge E. Gómez M⁴.

¹ Five-year Medical Student, University of Quindío, Armenia, Colombia.

² Psychologist. PhD student, University of Quindío, Armenia, Colombia.

³ MD, Pathologist, of the National Institute of Legal Medicine and Forensic Sciences, Armenia, Colombia.

⁴ MD. PhD Professor, University of Quindío, Armenia, Colombia.

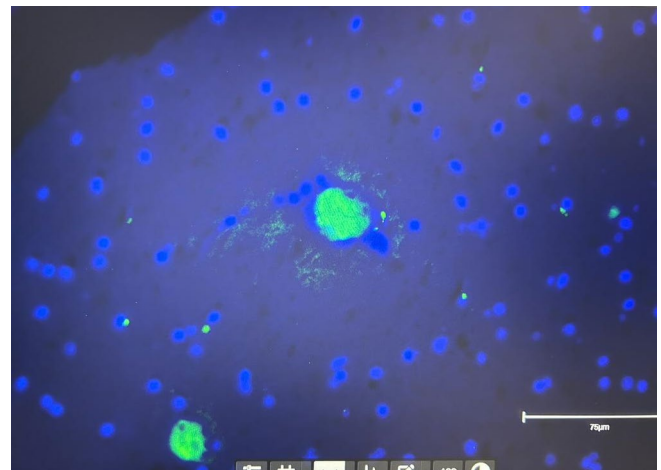


<https://www.youtube.com/watch?v=vlsNiqV1-28&t=27552s>

BACKGROUND: Several studies link toxoplasmosis with neuropsychiatric disorders. There are no previous reports of the frequency of the presence of parasite tissue cysts in autopsy cases from violent death or how is the distribution of frequency according to brain regions related with behavior (amygdala or hippocampus). The immune fluorescent antibody technique (IFAT) detects specific target antigens that allow the observation of bradyzoites within tissue cysts. We describe the frequency of tissue cysts using the IFAT detection in human brain tissue samples from immunocompetent persons deceased by suicide, traffic accidents and homicide.

METHODS: 21 brains from the National Institute of Legal Medicine and Forensic Sciences chapter "Eje Cafetero" (including cities of Armenia, Pereira, and Manizales) of violently deceased (which includes suicide, traffic accidents and homicide) persons were obtained, subsequently sections of the amygdala and hippocampus areas were processed in paraffin and thick sections were cut from paraffin blocks and mounted on slides by means of the IFAT, by using specific monoclonal anti BAG1 protein of the bradyzoite. Serum samples from the decedents were also examined for the presence of IgG and IgM antibodies to establish the existence of a previous infection. Data such as age, gender, sociodemographic data, and type of death were also obtained. Evaluation of the differences in the percentage of positivity according to the cause of death were assayed by using the Fisher exact test. **RESULTS:** Two decedents (9.5%) were female and 19 (90.4%) were male. The age ranged from 14 to 65 years; most completed or were in high school level of education. By city, 9 were from Armenia (42.8%) and 12 from Manizales (57.1%). By type of death, 11 samples (52.3%) were victims of homicide, 9 samples (42.8%) were suicide, and one sample (4.7%) was a traffic accident. We identified tissue cysts containing the bradyzoites in two cases in amygdala (9.5%), in amygdala and hippocampus in two (14.2%), and one case only in hippocampus (4.7%). In total we have six of 23 (26%) were positive for cysts in the brain. No statistically significant differences were found between groups in the percent of positivity. After counting we found a mean $1,3 \pm 0,4$ cysts by 20 microscopy fields of positive brain tissue examined. We found one of 21 positives for IgG antibodies in blood (47%). Within six cases with positive by IFAT in brain tissue five were also positive in antibodies (83%) only one case was negative for antibodies. **CONCLUSION:** The presence of bradyzoite was demonstrated in brain tissue samples from immunocompetent patients who suffered a violent death in the cities of Armenia and Manizales, Colombia. The results suggest that the bradyzoite after infection is permanently localized in brain tissue. A higher prevalence of bradyzoite parasites is observed in amygdala samples, an important region for behavior control.

Figure. Presence of cysts.



Key words: Fluorescent Antibody Technique; BAG1 Antigen; Human Brain; Violent Death (Source: MeSH-NLM).