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**Molecular Interrogation
Research Foundation**

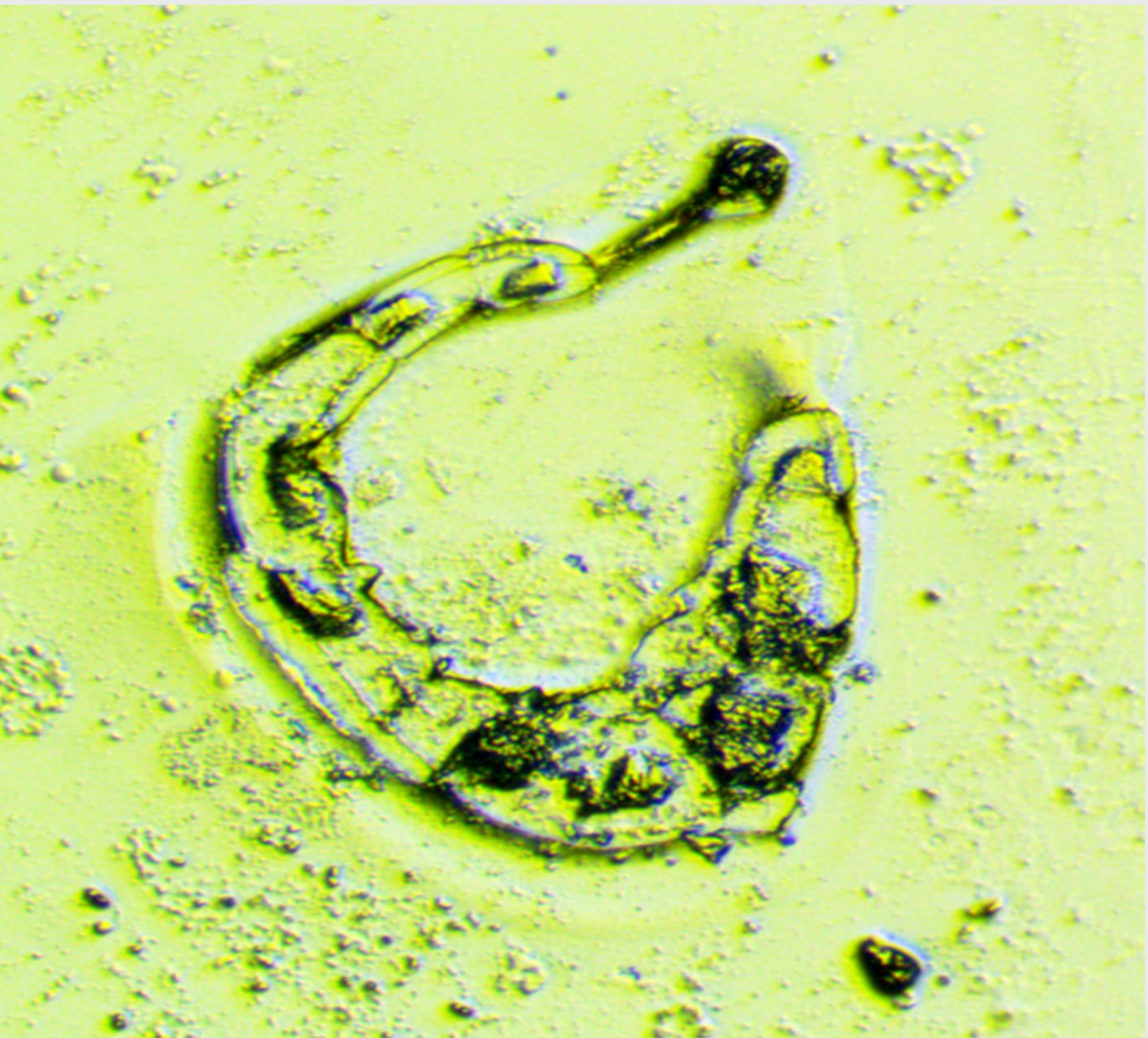
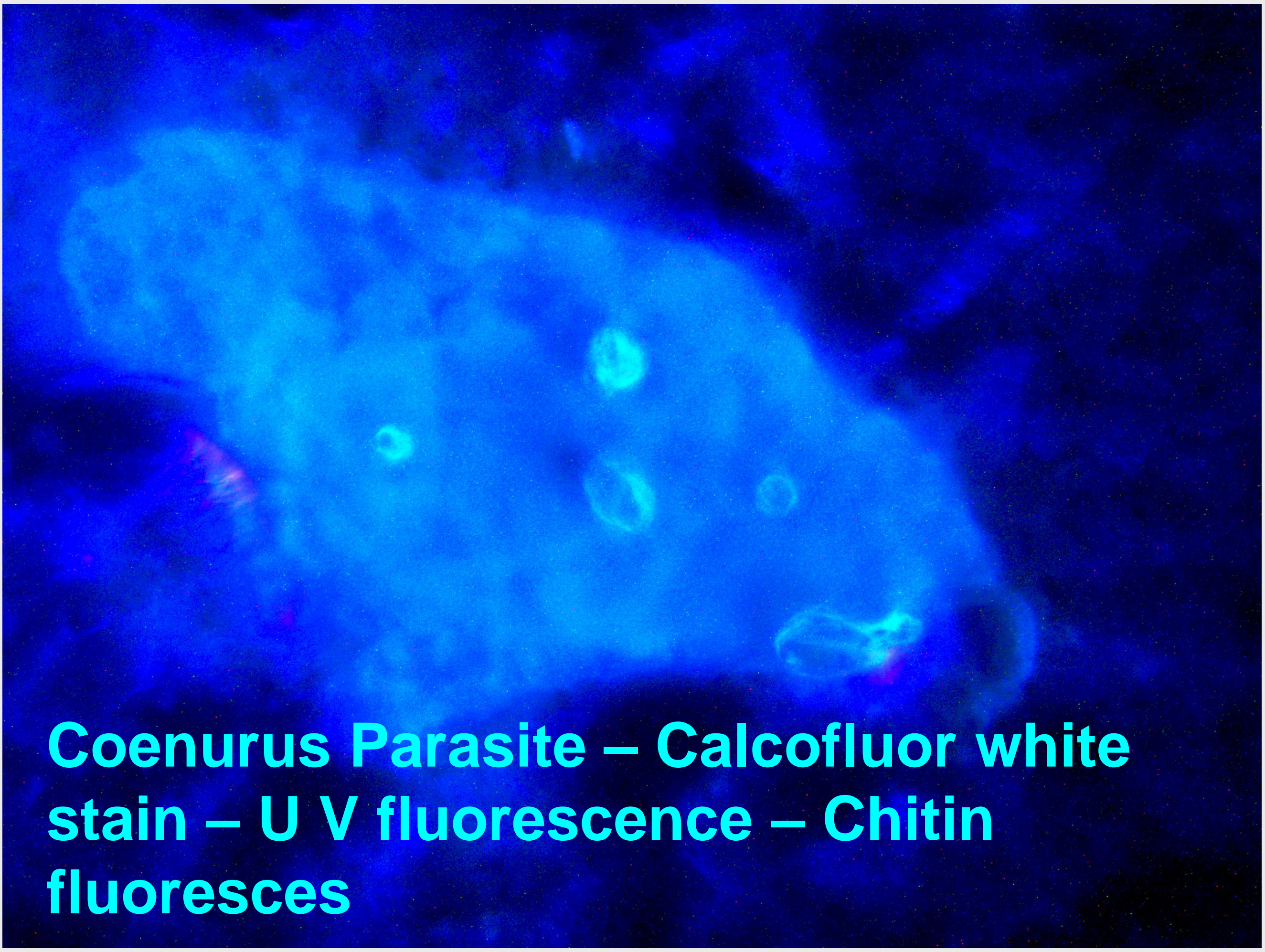
Multiple Sclerosis autopsy cerebrospinal lateral ventricle fluids demonstrate coenurus parasites- 10 patients – 1984-2014

Alan B. MacDonald, MD, Fellow, College of American Pathologists

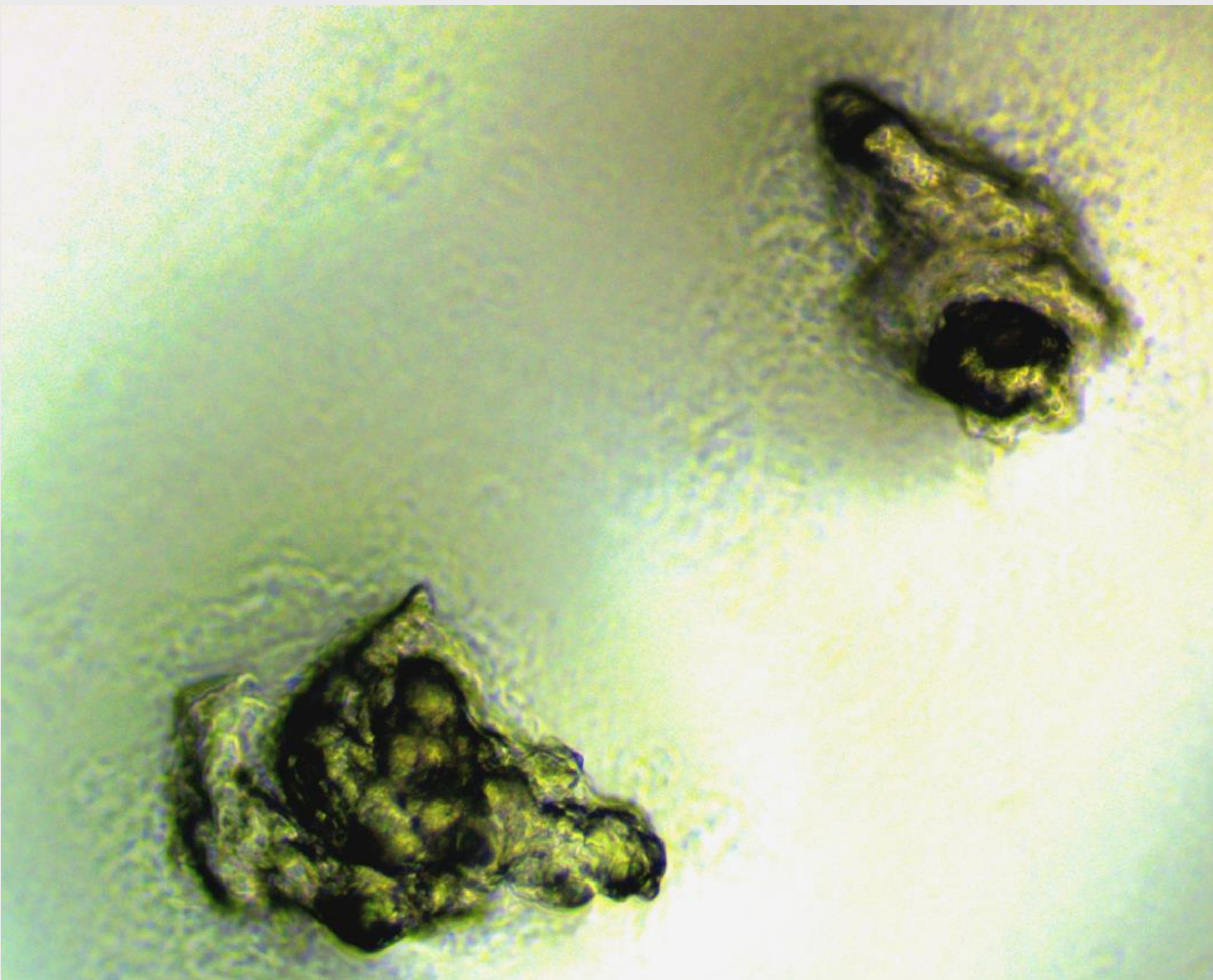
Multiple sclerosis is defined by myelin injuries which are disseminated in time and in spatial sites in the human brain and spinal cord. Cerebrospinal fluids from multiple sclerosis patients are **EXPECTED TO BE NEGATIVE** for agents of infection according to present definitions of the disease

Context
Autopsy confirmed multiple sclerosis tissues were deposited in the Rocky Mountain Multiple Sclerosis Brain Bank,, Boulder, Colorado for research study. Cerebrospinal fluid samples which were obtained by long needle aspiration of Lateral Brain Ventricle sites were immediately frozen and not further examined. CSF samples from 1984-2014 were retrieved from Cryopreservation and shipped to the Principal Investigator (ABM) for research examination. Discussion:
This report describes the first cytology examination of Autopsy cytology study of Brain Autopsy Ventricle cerebrospinal fluids from Neuropathologically confirmed multiple sclerosis.

RESULTS

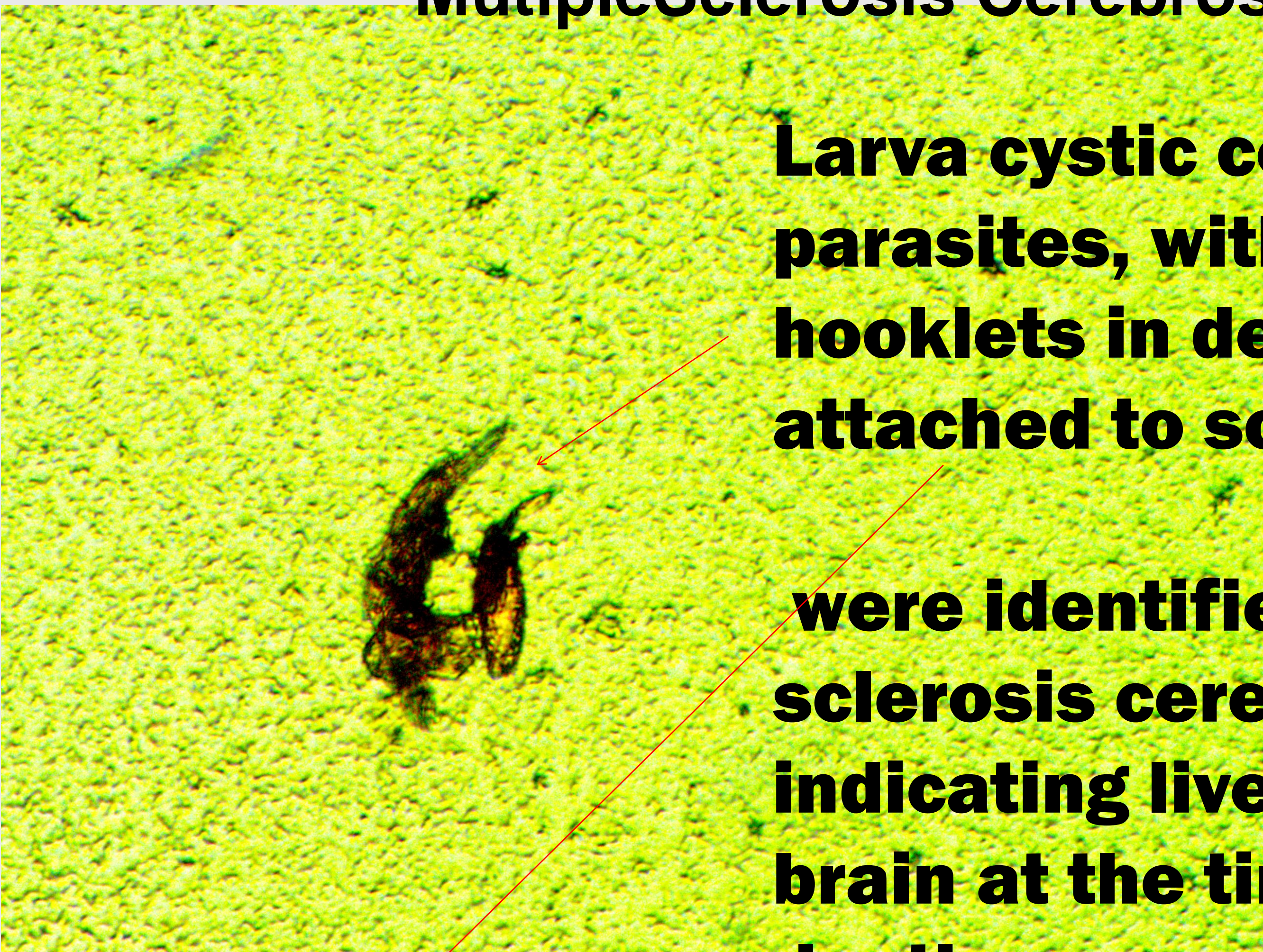


One segmented (strobilate) Juvenile Tapeworm with head ,neck and proglottid segments was found in one patient's Cerebrospinal fluid.

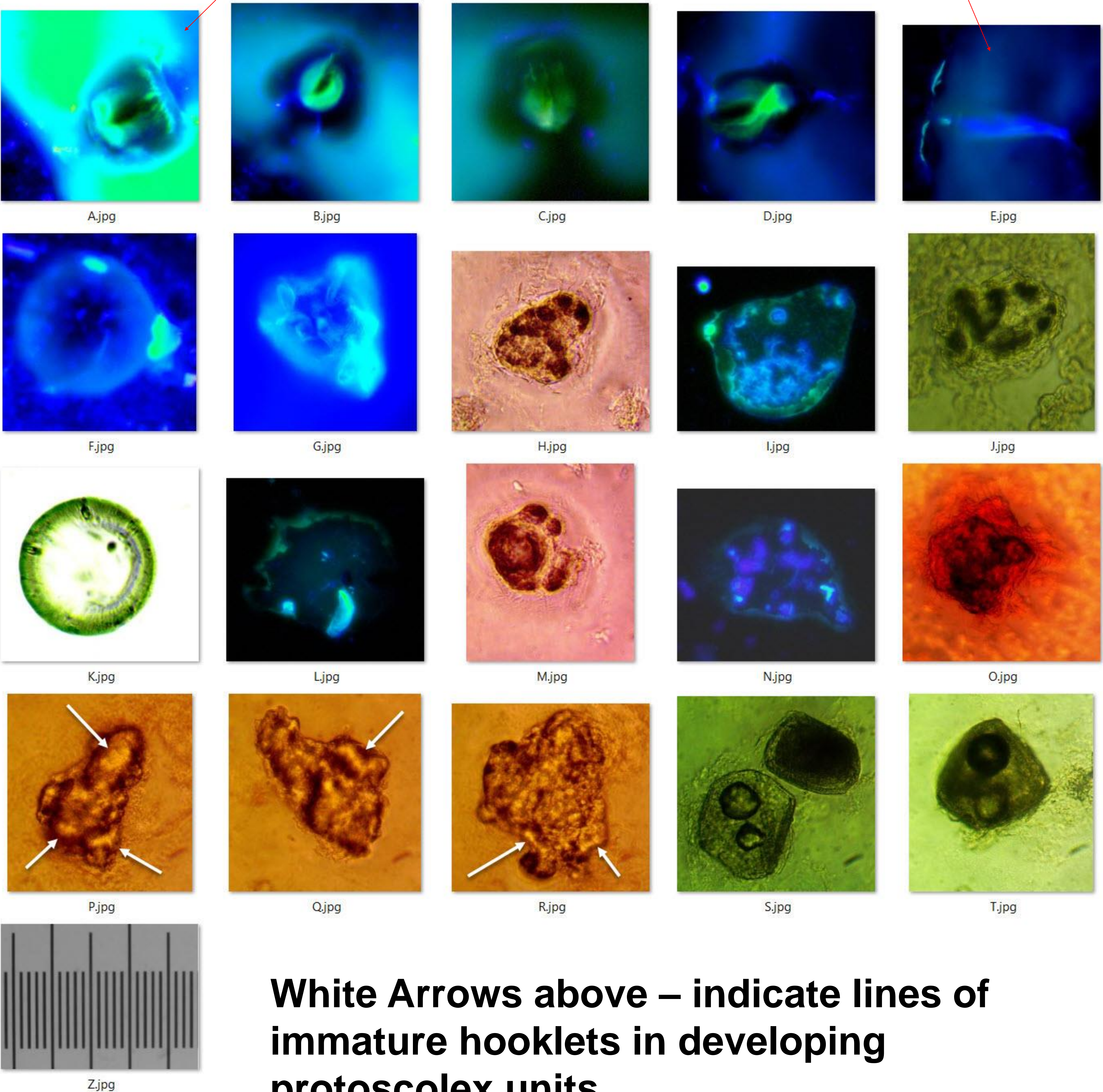


CONCLUSIONS

Parasites have never before been identified in multiple Sclerosis brain tissues or in MultipleSclerosis Cerebrospinal fluids.



Larva cystic coenurus type parasites, with cestode hooklets in detached units and attached to scolex (head) units, were identified in multiple sclerosis cerebrospinal fluids, indicating live parasites in brain at the time of patient death.



White Arrows above – indicate lines of immature hooklets in developing protoscolex units

REFERENCES : [CDC - DPDx – Coenurosis](http://www.cdc.gov/dpdx/coenurosis/index.html)
www.cdc.gov/dpdx/coenurosis/index.html