Alzheimer’s Disease Brain contains Nematode Parasites with Endosymbiont *borrelia* Microbes inside of Worms - Part One: Trichrome Stains of Worms in Alzheimer hippocampus

INTRODUCTION

African sleeping sickness was the disease model used by Dr. Hideto Noguchi in 1913 to confront for the first time in the history of medicine the notion that chronic brain infections could be the cause of dementia. Noguchi succeeded in proving that syphilitic dementia (general paresis) was caused by late (tertiary) syphilitic brain infections in 12 of 70 patients.

MacDonald was the very first to borrow Noguchi’s syphilis dementia concept, and adapt it to Alzheimer’s disease autopsy study. He focused on the detection of Borrelia spirochetes in Alzheimer’s disease brain autopsies in 1985-1990 (JAMA). Alzheimer’s disease affected brains produced pure cultures of Borrelia spirochetes. Monoclonal Borrelia-specific antibodies decorates Borrelia spirochetes in Alzheimer’s autopsy brain tissue microscopy. Borrelia-specific DNA probes (Molecular Beacons) hybridize to pathoms of *borrelia* dwelling INSIDE of amyloid Alzheimer’s plaque; granulocytic lesions in Alzheimer’s autopsy brain avidly bind Borrelia-specific DNA probes in the granular bodies inside of disease neurons. Impetus for evaluation of Alzheimer’s disease brains for neural larval migrans was prompted by MacDonald’s serendipitous discovery in January 2016 of nematode worm parasites in brain tissue from Lewy body dementia in immunohistochemistry studies of 4 patients. MacDonald reasoned that since 30% of Alzheimer’s shows concurrent Lewy bodies, that worms in brain as parasites might be detected in Alzheimer’s disease too.

METHODS AND MATERIALS

Fixation of tissue:
1. Fix brain tissue in Neutral buffered Formalin
2. Prepare glass microscope slides
Fluorescence In Situ Hybridization:
3. Perform FISH method DNA A Probe hybridization for Borrelia DNA
4. Stain DNA Probe Hybridized slides with an Amloid stain ( either Congo Red or Thioflavin T stain)
5. Photograph at 280 x magnification Amloid stain positive plaque, with an 8 MP digital camera

Darkfield Microscopy of Tissue sections

1. Auto fluorescence Microscopy Tissue sections with Ultraviolet light
2. Epifluorescence Microscopy of Tissue sections
3. For detection of Nucleotide binding Fluorochromes

RESULTS

A. B. C, Larval Worms in Alzheimer’s disease Autopsy Hippocampus-Harvard University Brain Bank

Trichrome Stain 100x magnification

CONCLUSIONS

Alzheimer’s Autopsy Brain contains Numerous Nematode Worm Parasites Including Larval and Fragmented Adult Worms

REFERENCES

None