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Neuropathological diagnosis of Alzheimer's disease in forensic autopsy of elderly persons with fatal accident

Paul M Ng'walali, Kosei Yonemitsu, Kazuhiko Kibayashi, Shigeyuki Tsunenari

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Abstract

Cognitive dysfunction in Alzheimer's disease may lead to accidental deaths in the elderly. Neuropathological diagnosis of the disease is, therefore, an important issue in forensic autopsy to determine the causal relation to accidents. To evaluate the suitability of the current histopathological diagnostic criteria for Alzheimer's disease by Khachaturian and Mirra et al. in elderly persons dying from accidents and coming for forensic autopsy, we studied the brains of nine demented and 12 non-demented persons by silver stain and immunohistochemistry. When the density of senile plaque was applied to the criteria, only four out of nine demented persons met the criteria for definite Alzheimer's disease. The demented persons had significantly higher density of diffuse plaque and higher frequencies of amyloid angiopathy, neurofibrillary tangle and neuropil thread than the non-demented persons. These results indicated that the current diagnostic criteria do not always diagnose Alzheimer's disease in forensic autopsy of elderly persons with fatal accident. The presence of abundant diffuse plaque, neurofibrillary tangle, amyloid angiopathy and neuropil thread may help to diagnose Alzheimer's disease in forensic autopsy.