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Dramatic Morphological Changes of Astrocytes in Influenza Associated Encephalopathy

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About the Study

Clasmatodendrosis is an abnormal morphological change of astrocytes characterized by fragmentation of distal processes and vacuolation of cell bodies. Clasmatodendrosis has been found in postmortem brain tissues in diseases such as dementia, head trauma, Neuro Myelitis Optica, and infectious encephalopathies, including influenza-associated encephalopathy [1,2]. The figure shows immunohistochemical stainings of Glial Fibrillary Acidic Protein (GFAP; astrocytic marker) in the postmortem brains of patients with IAE; A and B show the molecular and granular layers of the cerebellum, and C and D are the cortico-medullary border areas of the frontal lobe (Figure 1). Beaded, truncated astrocytic endfeet were observed in the cerebellar molecular layer and deep in the cortex. Such changes in astrocyte morphology were detected in various areas of IAE brains. Although the mechanism of clasmatodendrosis remains unclear, cytokines such as TNF-α are thought to cause such morphological changes in astrocytes. Clasmatodendrosis may be one of the causes of irreversible defects of neurological function after IAE.

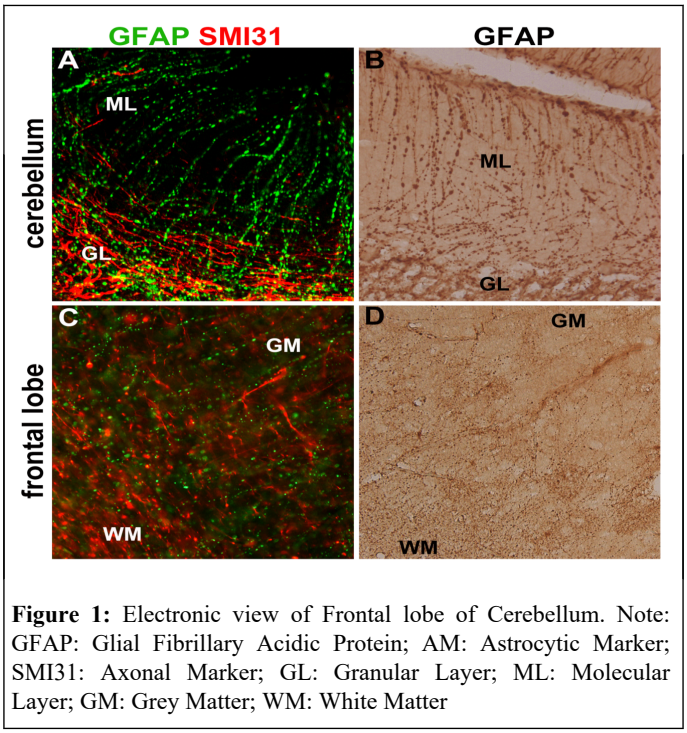

Figure 1: Electronic view of Frontal lobe of Cerebellum. Note: GFAP: Glial Fibrillary Acidic Protein; AM: Astrocytic Marker; SMI31: Axonal Marker; GL: Granular Layer; ML: Molecular Layer; GM: Grey Matter; WM: White Matter

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