

A Brain Tumour with Cilia And Microvilli

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Abstract

The ultrastructural examination of brain tumours can be challenging. There are several reasons for this including sampling issues, the infrequency of brain specimens received for analysis, and the complexity of the nomenclature within the disease classifications.

In the context of brain tumour analysis, zipper-like intercellular junctions and acini lined by microvilli and cilia are characteristic ultrastructural features of ependymal differentiation (Figure 1). Similarly, abundant cytoplasmic processes packed with intermediate filaments are suggestive of astrocytic differentiation. The case presented is that of a child with a frontal lobe mass and a history of seizures. Ultrastructural examination of a biopsy from the mass revealed both ependymal and astrocytic features. This dual combination of cellular differentiation within the tumour created an interpretational dilemma for the investigating electron microscopist, and a conservative descriptive approach to reporting of the ultrastructure was taken. It was subsequently learned that this pattern of dual differentiation is characteristic of a relatively new entity within the WHO Classification of Central Nervous System Tumours, namely, the angiocentric glioma [1].

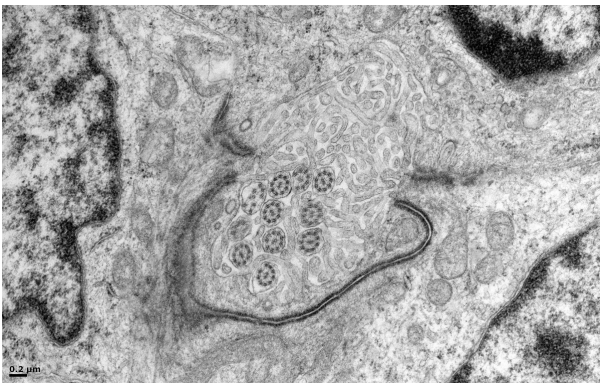


Figure 1. The tumour displays an acinus lined by microvilli and cilia, and apposing cells are connected by long zipper-like intercellular junctions. These ultrastructural features are characteristic of ependymal differentiation.

References

1. Louis D, et al. The 2021 WHO Classification of CNS Tumors. *Neuro Oncol.* 2021 Aug 2;23(8):1231-1251. doi: 10.1093/neuonc/noab106.