Cytogenetic and molecular genetic study on granular cell glioblastoma: a case report.


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Abstract

Granular cell astrocytoma is a rare infiltrative malignant glioma with prominent granular cell change. Granular cell astrocytomas are biologically aggressive compared with conventional infiltrating astrocytomas of similar grades, but their genetic alterations are poorly known. We report a case of granular cell glioblastoma and its genetic and molecular features. Histologically, the tumor not only showed features typical of granular cell astrocytoma but also demonstrated frequent mitoses, pseudopalisading necrosis, and vascular endothelial hyperplasia, compatible with glioblastoma. Array-based comparative genomic hybridization and focused molecular genetic analyses demonstrated gain of chromosome 7; losses of chromosome 1p, 8p, 9p, 10, 13q, and 22q; amplification of epidermal growth factor receptor; and homozygous deletion of CDKN2A as well as MGMT promoter methylation. However, neither isocitrate dehydrogenase 1 mutation nor codeletion of 1p/19q was found. Our results indicate that granular cell glioblastomas, despite having its peculiar granular cell changes, share common molecular genetic features with conventional glioblastoma, especially the classical subtype.

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