




Journal Article



Diffuse high-grade gliomas as second malignant neoplasms after radio-chemotherapy for pediatric malignancies

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Original Paper

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Abstract

Objects Diffuse high-grade gliomas are known to develop in children after cranial irradiation for other malignancies. Here, clinicopathological characteristics are outlined.

Methods Nine children received cranial irradiation and chemotherapy for medulloblastoma ($n=2$) or acute lymphoblastic leukemia ($n=7$). They developed a high-grade glioma 7–14 years thereafter. Clinical charts, radiologic findings, and pathologic specimens were reviewed. Archival material was stained immunohistochemically.

Conclusion Gliomas evolving as second malignant neoplasms show peculiarities and differ in some aspects from their "spontaneous" counterparts. Most are supratentorial, contrast-enhancing, space-occupying lesions. They are composed mainly of small undifferentiated cells, which are mainly negative for glial fibrillary acidic protein and positive for microtubule associated proteins 2 (MAP2). Epidermal growth factor receptor labeling could not be detected in any of them. Ki67-labeling was usually high, whereas p53- and h-ras p21-staining was variable. The median survival was only 12 months despite intensive treatment.

Keywords Brain tumor - Chemotherapy - Postirradiation - Radiation therapy - Radiation-induced neoplasm - Second malignancy

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