

PubMed

U.S. National Library of Medicine
National Institutes of Health

Display Settings: Abstract

[J Pediatr Hematol Oncol.](#) 2010 Aug 24. [Epub ahead of print]

Radiation-induced Glioblastoma Multiforme in Children Treated for Medulloblastoma With Characteristics of Both Medulloblastoma and Glioblastoma Multiforme.

Madden JR, Addo-Yobo SO, Donson AM, Liu AK, McNatt SA, Kleinschmidt-Demasters BK, Fenton LZ, Foreman NK, Smith AA.

Departments of *Neuro-Oncology double daggerNeurosurgery paralleIRadiology, The Children's Hospital Departments of daggerRadiation Oncology section signPathology, University of Colorado Denver, Denver, Colorado paragraph signDepartment of Pediatric Hematology/Oncology, University of Florida, Gainesville, Florida.

Abstract

Outcomes for average-risk medulloblastoma are excellent with 5-year event-free survival and overall survival >80%. Treatment failures include radiation-induced glioblastomas (RIG), which are often diagnosed solely on imaging. Recent studies suggest that RIGs differ from spontaneous glioblastoma multiforme (GBM), based on microarray gene-expression profiling. Retrospective review of children with average-risk medulloblastoma treated from 1996 to 2003 included 16 patients with 5 treatment failures. One died of disease progression, 1 died as a result of radiation necrosis, and 3 children died of pathology-confirmed GBM. Of these 3 GBMs, one was studied with electron microscopy, cytogenetics, and gene-expression microarray analysis. This tumor had focal medulloblastoma and similarity by gene-expression microarray with other RIGs. With both components in the recurrent tumor, we suggest it was in the process of transitioning from medulloblastoma to RIG, that is, "catching the tumor in the act." Some radiation-induced nervous system tumors may develop as a direct result of severe oncologic changes within the original tumor cells, with the tumor evolving into a different phenotypic tumor type. We recommend biopsy for tissue confirmation and genetic expression profile to shed light on the etiology of radiation-induced neoplasms.

PMID: 20736849 [PubMed - as supplied by publisher]

[LinkOut - more resources](#)