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Case Report

Induction of Gliosarcoma and Atypical Meningeoma 13 Years after Radiotherapy of Residual Pilocytic Astrocytoma in Childhood

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Key Words

- Pilocytic astrocytoma
- Malignant glioma
- Malignant transformation
- Radiotherapy
- Secondary malignant neoplasm
- Radiation induced meningeoma

Abstract

Background: Malignant transformation of pilocytic astrocytomas in children is rare and often linked to previous radiotherapy. **Methods and Results:** We report a patient who underwent subtotal resection of a right temporal and insular pilocytic astrocytoma at age 8 in 1988 followed by high-dose radiation therapy. A local recurrence, grade WHO III, with signs of focal sarcomatous transformation, was subtotally resected 13 years later in 2001. A new and fast growing right frontal meningeoma, grade WHO II, was removed in 2003. In 2004 a second glioma recurrence was partially resected, this time graded gliosarcoma WHO IV. The patient was treated thereafter with repeated courses of temozolamide. Another tumor mass reduction in 2005 was followed by stereotactic radiotherapy. Nevertheless, he deceased 3 months later. **Conclusion:** Most of the reported cases of malignant transformation of pilocytic astrocytomas received radiation therapy beforehand. Irradiation-induced meningeomas in children are known to occur, however not following radiotherapy of low-grade hemispheric gliomas. The presented case illustrates why adjuvant radiotherapy of residual pilocytic astrocytoma in children is not recommended anymore. For children who underwent radiotherapy in the past, we recommend MRI surveillance on a yearly basis far beyond 10 years, even in those who seem to have achieved total remission.


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