



CASE REPORT

The presence of TP53 and dedifferentiation of low-grade glioma: A rare possible adverse effect of radiotherapy?

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Summary Radiotherapy and radiosurgery are important modes of treatment for benign and malignant brain tumors. Radiation-induced tumors and radiation-induced malignant transformation of tumors have been described in many reports. Radiotherapy is one of the standard treatments for intracranial glial tumors. However, there is limited discussion of radiation carcinogenesis in glioma treatment. We present a 58-year-old male who was initially diagnosed to have low-grade glioma in an eloquent area of the brain by stereotactic biopsy. The tumor progressed rapidly after radiotherapy and a second stereotactic biopsy was done. Based on the WHO classification, the diagnosis for the second specimen was high-grade glioma. Histopathology showed that the expression of TP53 had increased from 40% to 60% in the second specimen. The finding was consistent with other reports of the malignant transformation of benign tumor after radiotherapy. Radiation carcinogenesis may be one of the causes for tumor progression to high-grade within 6 months. The effect of radiotherapy on the control of glioma is well-documented. Radiation carcinogenesis, which could cause malignant transformation of benign brain tumors, could also be observed in low-grade glioma. This report clearly indicates that caution is warranted regarding the use of radiotherapy for glial tumors, especially for low-grade gliomas.

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