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A glioblastoma arising from the attached region where a meningioma had been totally removed.

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Abstract

The co-occurrence of different histological tumors in the nervous system is rare and is mainly associated with phakomatoses or radiation exposure. A 72-year-old man underwent surgery for a frontal convexity meningioma. Four years after the surgery, a new lesion was detected in the attached region where the meningioma had been removed. The second tumor exhibited a high degree of cellularity, atypical mitosis, pseudo-palisading and microvascular proliferation, and was immunohistologically positive for GFAP and was diagnosed as a glioblastoma. Wild-type isocitrate dehydrogenase 1 was found in the second specimen. A genetic analysis using comparative genomic hybridization showed a DNA copy number loss on 1p35, 9pter-21, 10, 11q23, 13q, 14q, 20q, 22q and a gain on 7 in the second specimen. Although the mechanism responsible for the consecutive occurrence of meningioma and glioblastoma has not been elucidated, five hypotheses are feasible: (i) the lesions occurred incidentally; (ii) a low-grade astrocytoma present at the time of the first operation transformed into a high-grade glioma during the next 4 years; (iii) radiation received during the endovascular treatment induced glioblastoma; (iv) a brain scar created at the time of the first operation for meningioma led to the occurrence of a glioblastoma; and (v) the previous meningioma affected the surrounding glial cells, causing neoplastic transformation.

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