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Aberrant MGMT (O6-methylguanine-DNA methyltransferase) promoter methylation in choroid plexus tumors.

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Aberrant methylation of the MGMT (O6-methylguanine-DNA methyltransferase) DNA-repair gene is a predictive marker for the response to chemotherapy with alkylating agents (e.g., temozolomide) in malignant gliomas. Since temozolomide is considered for the treatment of choroid plexus tumors, MGMT promoter methylation status was retrospectively assessed in 36 choroid plexus tumors using methylation specific PCR, combined bisulfite restriction analysis (COBRA), and clone sequencing. By methylation specific PCR, all samples demonstrated a signal for MGMT methylation. COBRA confirmed >10% methylation of CpGs 17 and 31 in 58% of tumors. Clone sequencing of six cases methylated by COBRA confirmed aberrant methylation including a previously recognized enhancer element. In conclusion, MGMT promoter methylation is frequent in choroid plexus tumors and can be quantified using COBRA. Determination of MGMT promoter methylation status might be useful for the stratification of patients for alkylator-based treatments in future clinical trials.

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