

ABSTRACT

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Histologic Findings at Time of Repeat Resection Predicts Survival in Patients with Glioblastoma.

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OBJECTIVE: Radiographic worsening in patients with glioblastoma (GBM) undergoing treatment may be due to tumor recurrence or treatment effect. The overall prognosis of these patients based on histologic findings at the time of repeat resection is not well established.

METHODS: Patients with glioblastoma at our institution were identified. Patients who only had one surgery were excluded. Demographic and clinical data was recorded. The histologic diagnosis at the time of repeat surgery was recorded as either tumor recurrence or pseudoprogression. For this study, pseudoprogression was defined as absence of tumor histologic features and could show coagulative necrosis, reactive gliosis and/or inflammatory infiltration.

RESULTS: 115 patients were identified, 106 with tumor recurrence and 9 with pseudoprogression. The pseudoprogression group had a greater percentage of patients with MGMT methylation (37.7% vs 66.7%) but these results did not reach statistical significance. The overall median survival was 23.1 months. The overall median survival was 22.0 months in the tumor recurrence group and 33.3 months in the pseudoprogression group ($p = 0.0814$). The overall median survival from the time of repeat surgery was 8.4 months for the entire cohort, 8.3 months for the tumor recurrence group and 18.4 months for the pseudoprogression group ($p = 0.0063$). In multivariable analysis, presence of tumor features was predictive of worse overall survival from the time of second surgery (HR 3.96, 95% CI: 1.30-12.06, $p = 0.0156$).

CONCLUSIONS: In patients with worsening imaging, the absence of tumor on histologic diagnosis is associated with improved survival from the time of second surgery.

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