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## Risk for hydrocephalus, hygroma, and tumor dissemination after ventricular opening during resection of supratentorial neoplasms in children

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### Abstract

**Purpose:** The possibility that ventricular opening generates postoperative complications after surgical tumor treatment often restricts the degree of tumor resection. This study aims to determine whether the ventricular opening is associated with more complications in surgeries for resectioning supratentorial intra-axial brain tumors in the pediatric population.

**Methods:** A retrospective review analysis was performed of patients treated at IOP/GRAACC between 2002 and 2020 under 19 years of age and underwent surgery for supratentorial intra-axial primary brain tumor resection. Data were collected from 43 patients.

**Results:** Glial tumor was more common than non-glial (65% vs. 35%,  $p = 0.09$ ). The ventricular opening was not related to neoplastic spreads to the neuroaxis (6% vs. 0,  $p > 0.9$ ) or leptomeningeal (3% vs. 0,  $p > 0.9$ ). Of the patients whose ventricle was opened, 10% developed hydrocephalus requiring treatment, while none of the patients in the group without ventricular opening developed hydrocephalus ( $p = 0.5$ ). There was also no statistical difference regarding ventriculitis. Postoperative subdural hygroma formation correlated with the ventricular opening (43% vs. 0,  $p = 0.003$ ). The survival at 1, 5, and 10 years of cases with the ventricular opening was 93.2%, 89.7%, and 75.7%, respectively, while in cases without ventricular opening, it was 100%, 83%, and 83%, respectively, respectively, with no statistical difference between the mortality curves.

**Conclusion:** Our study demonstrated that ventricular violation was not associated with the occurrence of significant complications. It was related to the formation of subdural hygroma, which did not require additional treatment.

**Keywords:** Gliomas; Pediatric neuro-oncology; Pediatric neurosurgery; Tumor dissemination.

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