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The surgical management of third ventricle region tumors

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Abstract

Objectives: The goal of this study was to characterize the largest known cohort of patients presenting with different tumor pathologies in the third ventricle region to better understand outcomes of surgical management.

Methods: All patients undergoing surgical intervention on tumors in or encroaching upon the third ventricle at Loyola University Medical Center between the years 1986-2021 were reviewed. Information recorded included presenting symptoms, pre- and post-operative interventions, tumor pathology, operative technique, extent of resection (EOR), and approach of operation. The primary clinical outcome was Karnofsky Performance Status (KPS) score.

Results: Ninety-seven patients underwent 123 operations. Forty-six (47.4 %) patients were female, and the median age at operation was 39 years. Eighty-seven (70.7 %) operations were open, and 36 (29.3 %) were endoscopic. Gross total resection (GTR) was achieved in 34.4 % of operations, near-total resection (NTR) in 31.5 %, subtotal resection in 25.0 %, and biopsy alone in 9.3 %. Median KPS increased pre- to postoperatively, regardless of surgical technique. Adjusting for preoperative KPS, age, and operation number, regression analysis demonstrated a trend that lesser EOR is associated with lower KPS at most recent follow-up ($p=0.031$ for NTR vs GTR, $p=0.022$ for biopsy vs GTR). There was no statistically significant association between the most recent KPS and either open or endoscopic surgical technique, with or without adjusting for the previously stated factors ($p=0.26$). There was no association between postoperative complication rates or age with either surgical technique.

Conclusions: Here, we characterize a large cohort of patients presenting for neurosurgical evaluation of tumors in the region of the third ventricle. Our results demonstrate a trend that a more aggressive resection may yield better KPS outcomes. Additionally, both open and endoscopic techniques lead to a similar improvement in clinical outcome and rates of complication. While ultimate surgical approach and technique is determined by individual tumor characteristics, patient health status, and surgeon expertise, ability to resect the tumor in its entirety should be taken into consideration.

Keywords: Craniopharyngioma; Endoscopic endonasal; Gross total resection; Neuro-oncology; Third ventricle.

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