

P.083**Use of jugular venous pressure to optimize outcomes of vestibular schwannoma resection: a review of the literature and proof of concept**

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Background: Surgical resection of vestibular schwannoma (VS) is often curative if gross total resection is achieved, however, it is a delicate procedure with high risk to the facial nerve. With retrosigmoid approach for resection, the head is positioned to maximize lateral head rotation and neck flexion in order to optimize the surgical field. However, this may inadvertently occlude cerebral venous drainage, elevating intracranial pressure (ICP) and increasing intraoperative bleeding. **Methods:** Here, we review relevant literature regarding the effects of head rotation and neck flexion on internal jugular vein (IJV) occlusion and ICP, and highlight the notion that head rotation and flexion may occlude the ipsilateral IJV, increasing ICP. Subsequently, we propose a novel technique using continuous, real-time monitoring of jugular bulb pressure (JBP) to detect obstructions in jugular venous flow and guide optimal head positioning prior to VS resection. **Results:** As proof of concept, we present a case in which JBP monitoring was employed to optimize head positioning prior to a VS resection, which shows a significant reduction in JBP compared to traditional positioning. **Conclusions:** This innovative approach offers promise in enhancing the safety and efficacy of intracranial surgery for VS and potentially other neurosurgical procedures.

P.084**Early malignant transformation of intracranial epidermoid cysts: a case report and systematic review**

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Background: Intracranial epidermoid cysts (IEC) are benign congenital intracranial lesions that rarely undergo malignant transformation. We report a case of IEC evolving into squamous cell carcinoma (SCC) 1-year post-resection. Further, we conducted a systematic review on cases of early malignant transformations of IECs. **Methods:** MEDLINE, EMBASE, and Scopus were searched from inception until December 2023 for studies reporting malignant transformations of IECs within 2 years of diagnosis. **Results:** A 48-year-old female underwent surgical resection of a cerebello-pontine angle (CPA) IEC in May 2022. She re-presented in July 2023 with headaches, nausea, vomiting, right facial weakness, and rapid cyst progression. Repeat surgical resection revealed a high-grade SCC. Our systematic review identified 19 (10 females, 9 males) additional IEC cases undergoing malignant transformation within 2 years. The mean age at presentation was 57.6 years, most common location was CPA (n=13, 68.4%) and mean time between IEC to malignant transformation was 10.6 months. Eighteen

(94.7%) cases transformed to SCC, of which 2 had leptomeningeal carcinomatosis, and 1 transformed to glioblastoma. **Conclusions:** While malignant transformations of IECs are rare, regular postoperative follow-up is crucial for early malignancy detection and treatment initiation. Further study is warranted to evaluate factors contributing to accelerated malignant progression of IECs.

P.085**Characterizing molecular alterations in glioma growth and progression**

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Background: High grade gliomas (HGG) are incurable, aggressive brain malignancies that carry poor prognoses. Significant scientific advances have uncovered many of the features of these diseases; however, it remains unclear how mutations and transcriptional changes drive glioma growth and progression. **Methods:** We used a Nestin-Cre mouse model in combination with an extrinsic chemical mutagen (*N*-ethyl-*N*-nitrosurea, *ENU*), to model HGG. We combined our mouse model with live animal *in vivo* magnetic resonance imaging to track tumor growth over time, and sample discrete lesions during premalignant, early stage tumor, and end stage tumor phases. **Results:** We show that the somatic mutations, copy number changes, and transcriptional profiles of tumors vary depending on the stage of growth, and that the *Raf/Ras* pathway is key for tumor growth with a recurring *Braf* mutation occurring in early stage lesions. Gene set enrichment analysis (GSEA) shows that end stage tumors have increased immunogenic/inflammatory activity, and increased signaling through *Raf/Ras*. **Conclusions:** The combination of genetic and nongenetic insults results in activating mutations in early lesions, which continue to be biologically active and underlie key differences between early and end stage tumors. Overall, this work sheds light on important differences between early and late stage tumors.

P.086**The effect of after-hours surgical resection on the outcomes in patients with high grade gliomas**

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Background: The “weekend effect” is the finding that patients presenting for medical care outside of regular working hours tend to have worse outcomes. There is a paucity of literature in the neuro-oncology space exploring this effect. We investigated the extent of resection and complication rates in patients undergoing after-hours high grade glioma resection. **Methods:** A retrospective review was conducted on patients with high-grade gliomas requiring emergent surgery between January 2021 to March 2023. After-hours was defined as surgical resection on the weekend and/or evening. These patients were matched to patients undergoing resection during regular working hours. **Results:** A total of 38 patients were included in this study (19 after-hours, 19 regular hours). There was no significant difference in age, sex, tumor grade, and tumor size