

even in the absence of TPMs. Its presence may identify patients who may progress earlier and should be considered in risk stratification models.

P.158

Molecular characterization of RTOG-0539 risk groups in meningioma: insights into radiotherapy response and tumor biology

L Yefet (Toronto) A Landry (Toronto) J Wang (Toronto) J Liu (Toronto) V Patil (Toronto) C Gui (Toronto) Y Ellenbogen (Toronto) A Ajisebutu (Toronto) F Nassiri (Toronto) G Zadeh (Toronto)*

doi: 10.1017/cjn.2025.10304

Background: Meningiomas are the most common intracranial tumors. Radiotherapy (RT) serves as an adjunct following surgical resection; however, response varies. RTOG-0539 is a prospective, phase 2, trial that stratified patients risk groups based on clinical and pathological criteria, providing key benchmarks for RT outcomes. This is the first study that aims to characterize the molecular landscape of an RT clinical trial in meningiomas. **Methods:** Tissue from 100 patients was analyzed using DNA methylation, RNA sequencing, and whole-exome sequencing. Copy number variations and mutational profiles were assessed to determine associations with meningioma aggressiveness. Tumors were molecularly classified and pathway analyses were conducted to identify biological processes associated with RT response. **Results:** High-risk meningiomas exhibited cell cycle dysregulation and hypermetabolic pathway upregulation. 1p loss and 1q gain were more frequent in aggressive meningiomas, and NF2 and non-NF2 mutations co-occurred in some high-risk tumors. Molecular findings led to the reclassification of several cases, highlighting the limitations of histopathologic grading alone. **Conclusions:** This is the first study to comprehensively characterize the molecular landscape of any RT trial in meningioma, integrating multi-omic data to refine treatment stratification. Findings align with ongoing genomically driven meningioma clinical trials and underscore the need for prospective tissue banking to enhance biomarker-driven treatment strategies.

P.159

Negative feedback between Ezh2 and Cyclin D1 governs granule neuron precursor fate

A Chahin (Kingston) J Purzner (Kingston) T Purzner (Kingston)*

doi: 10.1017/cjn.2025.10305

Background: While developing a differentiation therapy for Sonic Hedgehog Medulloblastoma (MB), we discovered a potential paradoxical feedback cycle between Ezh2, a protein that temporarily keeps differentiation genes silenced via trimethylating H3K27, and Cyclin D1, a protein that regulates cell cycle entry. **Methods:** We quantified H3K27me3 in P7 purified cerebral GNPs using chromatin immunoprecipitation sequencing and correlated it with gene expression via RNA sequencing (RNA-seq). To assess transcriptional effects of Ezh2 loss, we purified P7 GNPs from Math1-Cre, Ezh2-flox knockout mice. MB cells were

cultured in suspension spheres and imaged using the ImageXpress Micro XLS system, with nuclei segmented based on DAPI staining. **Results:** Cyclin D1 ranked among the top 7.37% of expressed genes but was heavily marked by the repressive histone mark H3K27me3 (top 5.5%) in GNPs. Ezh2 overexpression increased G0-arrested MB cells 2.7-fold, while, in GNPs, RNA-seq showed significant Cyclin D1 upregulation in Ezh2 knockout mice (Log2FC: 1.301). Cyclin D1 regulates the pRb/E2F1 complex, and we observe that Ezh2 expression depends on pRb/E2F1 complex abundance, forming a feedback loop. Notably, combining the Hedgehog inhibitor Vismodegib with an Ezh2 inhibitor rescued MB cells from Vismodegib-induced death. **Conclusions:** Our study introduces a model that promotes GNP differentiation, leading tumor cells to differentiate into neurons.

P.160

Convexity dermoid cyst: a case report and review of the literature

B Newton (Saskatoon) P Toyota (Saskatoon) V Zhrebetskiy (Saskatoon) A Wu (Saskatoon) L Hnenny (Saskatoon)*

doi: 10.1017/cjn.2025.10306

Background: Dermoid cysts are rare benign intracranial lesions arising from abnormal neuroectodermal folding during embryogenesis. While typically midline, near the sella or posterior fossa, we report an unusual case of a convexity dermoid cyst extending into the sylvian fissure. **Methods:** A 33-year-old female with a left convexity mass underwent resection, confirming a dermoid cyst. A literature review was also conducted. **Results:** The patient presented with progressive, intermittent right-sided hand and face paresthesias. CT showed a 4.3 × 4.7 cm hypodense lesion with peripheral calcification contiguous with the calvarium. MRI revealed an extra-axial, T2-hyperintense, T1-hypointense lesion with internal septations extending from the calvarium into the sylvian fissure. Craniotomy achieved gross total resection, revealing a soft lesion with interwoven hair, suggestive of a dermoid cyst. Pathology confirmed a cystic lesion with mature squamous epithelium, keratin, skin appendages, and chronic inflammation. **Conclusions:** Dermoid cysts are rare intracranial lesions that most commonly occur in the midline. This case highlights a rare convexity dermoid cyst, expanding our understanding of its atypical locations.

P.161

Postoperative visual deterioration after endoscopic pituitary adenoma resection: predictors, management, and long-term sequelae

S Khairy (Ottawa) A Vargas-Moreno (Ottawa) M Saymeh (Ottawa) J Rabski (Ottawa) S Kilty (Ottawa) F AlKherayf (Ottawa)*

doi: 10.1017/cjn.2025.10307

Background: Postoperative visual deterioration following endoscopic endonasal surgery for pituitary adenoma is very rare yet significant morbidity. Visual deficit can arise from iatrogenic injury, compression or ischemic insults. The specific predictors of

visual decline and their correlation with the effectiveness of various interventions remain poorly understood. **Methods:** We retrospectively reviewed data from 790 patients who underwent endoscopic endonasal surgery for pituitary adenoma between 2014-2024. We included all the patients who had New Postoperative visual deterioration. Demographic, preoperative, intraoperative, postoperative data were collected and analyzed. **Results:** Nine patients (1.13%) experienced early postoperative visual deterioration. None of the patient has intraoperative report of direct injury to the optic apparatus, ischemic etiology was seen in five patients. Four patients underwent early reoperation to explore and decompress the optic apparatus. Vision was restored to baseline after reoperation in all 4 compressive cases. In the ischemic group (n=5), three patients improved with supplemental oxygen and hypervolemic-hypertensive therapy (p=0.03). **Conclusions:** Prognosis and outcome of Postoperative visual deterioration depends on the underlying cause and the effectiveness of intervention. Compressive etiology has a favorable prognosis when identified and managed with reoperation and decompression. Ischemic etiology potentially treatable with supplemental oxygen hypervolemic-hypertensive and high mean arterial pressure in more than half of cases.

P.162

The challenge of Giant Olfactory Groove Meningiomas: long-term outcome and predictive modeling

S Khairy (Ottawa) A Alkhaibary (Riyadh) A Vargas-Moreno (Ottawa) M Saymeh (Ottawa) F AlKherayf (Ottawa) A Aloraidi (Riyadh) A Alkhani (Riyadh)*

doi: 10.1017/cjn.2025.10308

Background: Giant olfactory groove meningiomas (OGMs), though rare, pose challenges due to their size. These slow-growing tumors often remain asymptomatic until exceeding 6 cm in diameter. While surgery has advanced, understanding long-term outcomes remains crucial. **Methods:** This retrospective study at a major medical center included all patients with giant OGMs (>6 cm) undergoing resection from 2000-2022. Data on visual status, recurrence, and functional status were collected. Multivariable logistic regression identified predictors of recurrence and functional outcome. **Results:** Thirty-two patients met the inclusion criteria for this study, with a mean age of 55.8 years. The mean follow-up period was 62 months. The majority of giant OGMs were classified as WHO grade 1 (84.4%). Postoperatively, 19 patients demonstrated improvement in visual acuity and visual field deficits. Radiological recurrence was observed in nine patients (28.1%) at a mean follow-up of 56 months, with only three requiring reoperations for tumor resection. One patient developed a brain abscess, necessitating reoperation. Multivariable analysis identified patient age, Simpson grade of excision, and WHO grade as significant predictors of recurrence rate. **Conclusions:** This study demonstrates that surgery can improve visual deficits and functional outcomes. Postoperative outcomes were strongly predicted by age, resection extent, and histological grade. Developing a new predictive scale based on these parameters appears to strongly predict the Giant OGMs Long-Term outcome.

NEUROCRITICAL CARE

P.164

Early versus late initiation of chemical venous thromboembolism prophylaxis in adult patients with severe traumatic brain injury: a systematic review and meta-analysis

B Karmur (Calgary) J Mann (Calgary) M Yang (Calgary)*

doi: 10.1017/cjn.2025.10309

Background: Patients with severe traumatic brain injury (TBI) are at uniquely high risk of venous thromboembolism (VTE), but the benefits of VTE prophylaxis must be weighed against the risk of intracranial hemorrhage expansion. Current guidelines are heterogeneous in their recommendations for chemical VTE prophylaxis (cVTEp) in this high-risk cohort. We conducted a systematic review to identify the optimal timing of cVTEp in severe TBI patients. **Methods:** We executed a systematic search of the literature to identify adult severe TBI patients treated with cVTEp. Results were pooled, analyzed using random-effects models, and presented as Forest plots and odds ratios. **Results:** We included 21 studies representing 322,735 patients. The odds of VTE were 0.47 (95% CI: 0.37, 0.60) when using the authors' own criteria for early initiation, and the odds of VTE remained significantly decreased in subgroup analysis (<24h, <48 and <72h). Early VTEp both as defined by authors and in subgroup analysis did not significantly impact the odds of hemorrhage progression or mortality; except for initiation <48h which showed a positive impact on mortality (OR: 0.74, 95% CI: 0.63-0.87). **Conclusions:** This study supports early initiation of cVTEp in reducing the odds of VTE events without significantly increasing the risk of adverse events.

NEUROIMAGING

P.165

Comparison of preoperative diffusion tensor imaging tractography platforms for intrinsic brain lesions

AR Lussoso (Edmonton) IE Harmsen (Edmonton) CA Elliott (Edmonton)*

doi: 10.1017/cjn.2025.10310

Background: Diffusion tensor imaging (DTI) tractography enables detailed visualization of white matter tracts (WMT) relevant to surgical planning. Head-to-head performance of clinically available DTI software has not been assessed. We retrospectively compared Synaptive's Modus Plan™ (vers. 2.0.1.1743) and Medtronic's StealthViz™ (vers. 1.4) software, focusing on workflow, usability, stability, and capacity to generate WMT reconstructions. **Methods:** Retrospective evaluation of patients (n=13) with intrinsic brain lesions (01/2021-12/2023) with MP and SV software. Corticospinal and optic radiation WMT reconstruction was attempted according to the manufacturers specifications and was rated as clinically useful or not, based on anatomic plausibility. Duration of each analysis step