

P.103**Imaging neuron-glioma cell interactions in freely behaving animals with a novel implantable mini-microscope***M Keough (Edmonton)* K Shamardani (Stanford) M Monje (Stanford)*

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Background: High grade gliomas (HGG) are diffusely infiltrative brain tumours with dismal prognosis. Recent studies from our lab have demonstrated that glioma cells form synapses with surrounding neurons, and proliferate in response to neuronal input. How these neuron-glioma networks develop, and are influenced by experience, is currently unknown. We aimed to develop a novel imaging tool to study neuron-glioma cell interactions in freely behaving animals. **Methods:** Several patient-derived HGG cell lines were transfected to express the green calcium indicator GCaMP6s. These cells were xenografted into the premotor cortex of mice, along with a virus expressing the red calcium indicator jRGECO1a under a neuron-specific synapsin promoter to allow dual-color imaging of neurons and glioma cells. The Inscopix mini-microscope system was implanted into the cortex to allow real-time live calcium imaging in freely behaving animals. **Results:** Several HGG cell lines effectively expressed the GCaMP6s calcium indicator. In vivo, we were successfully able to image both neurons and glioma cells simultaneously in freely behaving mice in real time. **Conclusions:** The Inscopix system has been modified for studying cancer cells for the first time. This technology will be used to study how pharmacological agents and neuronal experience shape neuron-glioma circuit dynamics, to develop new therapeutic strategies for HGG.

P.104**Grade 3 meningioma survival, recurrence and functional outcomes in an international multicenter cohort***AD Rebchuk (Vancouver)* K Tosefsky (Vancouver) JZ Wang (Toronto) Y Ellenbogen (Toronto) R Drexler (Hamburg) FL Ricklefs (Hamburg) T Sauvigny (Hamburg) U Schüller (Hamburg) C Cutler (Chicago) B Lucke-Wold (Gainesville) Y Mehkri (Gainesville) S Lama (Calgary) G Sutherland (Calgary) M Karsy (Salt Lake City) BL Hoh (Gainesville) M Westphal (Hamburg) G Zadeh (Toronto) S Yip (Vancouver) S Makarenko (Vancouver)*

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Background: Meningiomas are the most common intracranial tumor, graded from 1 (benign) to 3 (malignant). The aim of this study was to identify clinical features associated with overall survival (OS), progression-free survival (PFS) and functional status for malignant meningiomas. **Methods:** Demographic, clinical and histopathological data from grade 3 intracranial meningioma cases were identified in the clinical databases from seven sites in North America and Europe from 1991-2022. Summary statistics and Kaplan-Meier OS and PFS curves were generated. **Results:** We identified 108 patients, with a median age 65 years (IQR: 52, 72) and 53.7% were female. Median OS was 109 months (95% CIs: 88, 227), and 5-year OS rate was 65% (95% CIs: 56, 76). Median PFS was 38 months (95% CIs: 24, 56) and 5-year PFS rate was 37% (95% CIs: 28, 49). OS and PFS

were significantly lower in patients aged ≥ 65 years. Median preoperative KPS score was 80 (IQR: 70, 90), postoperatively KPS was 90 (IQR: 70, 98) and 1-year follow-up KPS was 70 (IQR: 50, 80). **Conclusions:** This study provides robust survival, recurrence and functional data for grade 3 meningiomas in North America and Europe over a 30-year period.

P.107**Endocrine and vision outcomes following ^{90}Y trium therapy for cystic sellar lesions: a prospective cohort study***MA MacLean (Halifax)* S Ahmad (Halifax) AL Hebb (Halifax) A Tahir (Halifax) R Greene (Halifax) S Burrell (Halifax) DB Clarke (Halifax) SA Imran (Halifax)*

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Background: Due to high risk of recurrence and complications associated with microsurgical resection or aspiration of enlarging cystic sellar lesions, stereotactic intracavitary irradiation with ^{90}Y trium (^{90}Yt) has been proposed as an alternative to mitigate these challenges. Long-term efficacy data for this procedure is lacking. **Methods:** We conducted a Health Canada approved, single-centre, prospective cohort study to assess the effect of ^{90}Yt therapy on cyst volume, visual field (VF) testing and endocrine function. All patients underwent right frontal stereotactic insertion of ^{90}Yt colloid (200 Gy cyst wall). **Results:** 22 patients [mean age = 63.5 (\pm 15.4) years] received ^{90}Yt therapy. Mean follow-up was 52 (5-113) months. Cysts included: craniopharyngioma (86%), Rathke's cleft cyst (9%) and cystic prolactinoma (5%). Mean cyst volume reduction was 77% at 12-months (5.2 ± 4.5 cc to 1.2 ± 1.5 cc; $p = 0.002$). Rate of pre- and post-op hormonal dysfunction was 59% and 68%, respectively ($p = 0.50$). Pre-operative VF deficits were found in 68% of patients, of which 32% normalized and 36% remained stable ($p = 0.180$). Worsened vision was detected in 9% of patients post-operatively. **Conclusions:** ^{90}Yt trium therapy significantly reduces sellar cyst size without having a deleterious effect on vision and endocrine function.

P.109**Meningioma with intraparenchymal abscess: a case report and review of the literature***A Kulamurugan (Toronto) E Yasuda (Hamilton) M Alhantoobi (Hamilton)* K Reddy (Hamilton)*

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Background: Intracranial intratumoural abscesses are rare occurrences typically treated with antibiotics and possible surgical resection. This study describes a meningioma-associated abscess and a review of the literature. **Methods:** Medical records and investigations were reviewed. A literature search of PubMed was completed. **Results:** A 56-year-old male presented with septic shock and dysuria. Urine culture isolated E. Coli, and he was treated with Ertapenem prior to discharge. A CT scan was ordered during hospitalization for unrelenting headaches, revealing a meningioma. Conservative management with follow-up as an outpatient was decided. However, he returned within two weeks with a fever and progressive left-sided weakness. A right frontal craniotomy for tumour resection was performed, and culture of necrotic-appearing tissue within the