

ratios than metastases from the breast ($p=0.023$); post-treatment, a trend of $>25\%$ improvement in both cystic and solid components of tumours was seen in lung primaries ($p=0.239$). Colorectal brain metastases demonstrated the best treatment response of the cystic component, significantly higher than breast metastases ($p=0.007$), but not lung. Deep tumours not only had lower cystic volumes pre-GKS than superficial tumours (nonsignificantly), but also had significantly lower post-GKS cystic volumes ($p=0.041$). The results of the study show that factors such as primary tumour location and deep/superficial location of metastasis can be used to predict response of cystic tumours to GKS.

CP7

doi:10.1017/cjn.2014.86

Epidemiology of malignant pontine gliomas (MPG) in the paediatric population in Canada: A study of the Canadian paediatric brain tumour consortium (CPBTC)

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CP8

doi:10.1017/cjn.2014.87

Treatment of recurrent central nervous system inflammatory myofibroblastic tumor with crizotinib

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Inflammatory myofibroblastic tumors (IMT) are rare entities with a wide range of local aggressiveness, and low metastatic potential. Complete surgical excision is the main treatment for IMTs arising from the central nervous system (CNS). However, local recurrence rates are high, especially in IMT expressing ALK. Approximately 50% of IMTs express ALK, which is likely secondary to chromosome 2p23 rearrangements. Case: A 26 year-old male was initially diagnosed with a left-tentorial IMT following 3 months of headaches, mood changes and lateral vision deficits. After a partial resection of the tumor, progression of the residual disease was observed 2 months later on MRI. He underwent a gross total resection followed by adjuvant radiotherapy (60Gy in 30 fractions). The disease recurred 9 months later at the left-parietal lobe. A third operation was performed, but imaging revealed multi-focal recurrence 6 month post-operatively. As immunohistochemical studies showed strong cytoplasmic staining for ALK, the patient was given a trial of crizotinib, an ALK inhibitor. Two months later, partial response was achieved. The patient remains in partial remission after 7 months of crizotinib. Apart from diarrhea, slight renal failure and blurred vision, crizotinib was well tolerated. Conclusions: This is the first reported case of a CNS ALK-positive IMT responding to crizotinib. The response seen in our patient supports a trial with crizotinib in patients having exhausted conventional treatments for relapsing CNS IMTs. As no consistent ALK translocations are observed in IMT, exome sequencing is being done to identify the specific ALK aberration in this tumor.

CP9

doi:10.1017/cjn.2014.88

Quantitative MRI changes post-stereotactic ablative radiotherapy of the spine

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Purpose: To assess early MRI volumetric and signal intensity changes after spine stereotactic body radiotherapy (SBRT) and to correlate these changes to local control (LC). Material and methods: T1 and T2-weighted non-contrast MR images of 30 spinal lesions treated with SBRT were analyzed. T1 and T2-based gross tumor volumes (GTV) were contoured on pre-treatment and follow-up MRIs. A MatLab program was developed to analyze T2 signal changes using the spinal cord as reference signal intensity. Volume and T2-signal alterations on first follow-up MRI (3-6 months) were correlated with LC. Local recurrence (LR) was proven pathologically. Results: At a median follow-up of 15.2 months, LC and disease-specific survival were 74% and

79 %. Median time to LR was 17 months (range= 1.5-24). First MRI analysis showed increased T1 and T2 GTV in 47 % of lesions. Of these, 47% ultimately developed LR. All patients with LR but one presented increased GTV at 3-6 months (median 28%, range= 1; 290%) associated with reduced T/S signal ratio (median -0.16, range= -0.04; -0.7). In patients with no LR at last follow up, 21% presented increased GTV (median 4%, range= 1; 57%) always associated with increased T/S ratio (median 0.7, range: 0.5; 1.34). Decreased GTV was observed in 79% of lesions with no LR (median -13%, range= -2; -55%). Conclusion: Early volume changes seem to correlate with subsequent local failure. Patients with what may be small increases in tumor volume on the first post-SBRT MRI should be followed more closely for LR. Early T2 signal changes do not appear to correlate with LC.

CP10

doi:10.1017/cjn.2014.89

Radiosurgery for recurrent glioblastoma multiforme: A single institution experience

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Purpose: Patients presenting with recurrent glioblastoma multiforme (GBM) are challenging cases in neuro-oncology. Radiosurgery (SRS) can be considered as a treatment option at recurrence. Methods: Eighteen patients with recurrent GBM were treated with SRS at our institution between 2006 and 2013. Two-thirds of patients were male, median age at diagnosis was 52 years old. All patients had been treated previously with surgery followed by adjuvant radiation therapy of 60 Gy with concurrent temozolomide (TMZ) as first-line therapy. The majority (72%) presented with a local recurrent lesion in the same area as their presenting tumor. Median treatment volume was 7.3 cc, median marginal dose was 18 Gy prescribed at the 50% isodose line. Twelve patients received concurrent chemotherapy, mostly rescue TMZ (9). Results: Survival at 6 months was 82%. Median time to progression, local or distant, was 3 months. The local recurrence rate was 50% at 3 months, and 76% at 6 months. Only one patient developed significant toxicity with surgically resected radiation necrosis following SRS. Interestingly, this patient has now been free of recurrence for more than 3 years. Conclusions: As most second-line therapies, this series suggests that SRS, alone or in combination with temozolomide, is associated with brief rates of local disease control. However, since it is a well-tolerated procedure, its combination with other chemotherapy agents could be explored in the future for recurrent GBM.

CP11

doi:10.1017/cjn.2014.90

The factors associated with pituitary adenoma (PA) growth rate remain unclear

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Objective: To establish whether the preoperative growth and extension pattern of PA can predict postoperative growth rate and recurrence in addition to whether PA growth rate correlates with proliferation and growth factor expression. Patients: 153 consecutive patients who underwent surgery for pituitary adenoma from 1999-2011 at Toronto Western Hospital were identified. Main Outcome measures: PA growth rate was measured both pre- and postoperatively and its association to patient demographics, MRI and histopathological parameters was determined. Results: The preoperative growth rate was associated with age (p=0.0001), suprasellar growth (p=0.003), the presence of a cyst/hemorrhage (p=0.004), the MIB-1 (p=0.005), FGFR4 positivity (p=0.047), and p27 negativity (p=0.007). Following surgery, there were 34.6% residual volumes, which were associated with older age (p=0.038) and also with growth patterns including anterior, posterior, suprasellar, and CS extension (p=.001). 41.6% of these residual grew and postoperative growth rate was calculated. Pre- and postoperative growth rates were correlated (r= 0.497, p=0.026). Postoperative growth rate was associated with age (p=0.015) and gender (p=0.017). Conclusions: Our data suggest that the growth rate of PAs are influenced by various patient and tumor-specific characteristics including the age and sex of the patient, the specific subtype of PA, its hormonal activity, its immunohistochemical profile including the MIB-1 LI status, and its preponderance for different growth directions relative to the pituitary fossa. Furthermore, the pre- and postoperative PA growth rates were correlated suggesting that postoperative PA growth rates can be predicted, in part, by preoperative growth rates thus better informing postoperative outcome.

CP12

doi:10.1017/cjn.2014.91

Radiologic and histopathologic characteristics and their predictive role in clinical outcome of patients underwent resection of intracranial meningiomas

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Introduction: Meningiomas are common intracranial neoplasms with a great variability in clinical and biological behavior.