

NEURO-ONCOLOGY

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Radiological characteristics of brain metastases in non-small cell lung cancer relative to EGFR mutation status*O Hashmi (Norwich)* H Younus (Norwich), L Bolton (Norwich)*

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Background: Approximately 20-40% of patients with non-small cell lung cancer (NSCLC) will develop brain metastases (BM). The aim of this study was to investigate if Epidermal Growth Factor Receptor (EGFR) status of NSCLC alters the radiological appearances of BM. Also to compare differences in imaging features of BM occurring from EGFR-mutated NSCLC during treatment with Tyrosine Kinase Inhibitors (TKI) versus prior to treatment.

Methods: A retrospective study was performed over a 5 year period of all patients with histologically proven NSCLC with BM and known EGFR status. 72 patients met the inclusion criteria. Radiological features were reviewed as well as number, size and location of BM. **Results:** 18/72 patients had EGFR-mutated NSCLC and of these 9 presented with BM while on TKI treatment. Patients with EGFR-mutated NSCLC had statistically significant higher occurrence of multiple BM ($p=0.029$) and BM in a central location ($p=0.027$). BM that occurred during TKI treatment appeared smaller and with minimal surrounding oedema. **Conclusions:** Given the propensity for multiple BM in EGFR-mutated NSCLC, vigilant imaging follow up would need to be considered. BM presenting while on TKI were more subtle, especially on Computed Tomography (CT), therefore careful follow up with Magnetic Resonance Imaging (MRI) may be required.

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Does BRAF mutation status or being on systemic therapy alter the radiological appearance of brain metastases in metastatic melanoma?*O Hashmi (Norwich)*, H Younus (Norwich)*

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Background: The aim of this study is to investigate the differences in the radiological appearances of brain metastases (BM) in metastatic melanoma (MM) relative to BRAF mutation status. As well as to compare imaging differences in BM that occur prior to starting and during systemic therapy. **Methods:** A retrospective study was done over a 5 year period. Patients with MM with BM and known BRAF status were identified. 38 met the inclusion criteria. Imaging features on both Computed Tomography (CT) and Magnetic Resonance Imaging (MRI) were reviewed. **Results:** Irrespective of BRAF mutation status, BM in MM tended to have a peripheral location with 30/38 cases having BM in the cerebral cortex. BRAF positive MM had a higher frequency of irregularly enhancing BM on CT and higher occurrence of BM showing high T1 signal on MRI. BM found during systemic treatment, regardless of BRAF status, showed less surrounding oedema, were smaller and harder to spot on CT. **Conclusions:** Understanding imaging features based on genetics

could inform future management. The subtle features of BM on CT during systemic therapy means careful follow up with MRI may be indicated to confirm the diagnosis and to more accurately assess the burden of brain disease.

NEUROIMAGING

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Safety and Efficacy of Vascular Closure Devices in Interventional Radiological Procedures*E Kim (Winnipeg)* B Sebastio-Goncalves (Winnipeg) A Lee (Winnipeg) S Sudarshan (Winnipeg), J Shankar (Winnipeg)*

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Background: Vascular closure devices (VCDs) are routinely used in both neurovascular and vascular interventional procedures. The purpose of our study was to assess the safety and efficacy of the VCDs for diagnostic and therapeutic neurovascular and vascular procedures.

Methods: The study was approved by the University of Manitoba research ethics board. A retrospective review was conducted of the database between January 2017 and December 2019. The data was collected from the Picture Archiving and Communication System (PACS) and collected in an excel spreadsheet. Patient demographics and clinical information was collected. Descriptive statistics and chi-squared tests were performed using STATA 13 software. A $p<0.05$ was considered significant. **Results:** VCD was used in a total of 2072 patients. VCDs were successfully deployed in 94% with 6% failure. Immediate perioperative complications were seen in 6.2% patients. The complication rates were significantly ($p=0.025$) associated with the type of procedure. Complications were seen significantly ($p=0.044$) higher in outpatients compared to inpatients and those from emergency room. **Conclusions:** VCDs were successfully deployed in 96% of patients. 96% of VCDs were successfully deployed in 94% of the patient with 6% perioperative complications. Most of the complications were minor and complications were more commonly associated with outpatients procedures and with diagnostic vascular procedures.

NEUROSCIENCE EDUCATION

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How well can neuroradiologists localize clinical signs?*C Curtis (Calgary)*, A Pauranik (Calgary)*

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Background: A basic understanding of localization for a given set of focal neurological deficits is essential for accurate acquisition and interpretation of neuroimaging. Relying on often-limited clinical information, neuroradiologists must choose the most appropriate imaging modality and tailor a study to best identify the culprit lesion to allow for accurate interpretation. **Methods:** A multiple-choice quiz was designed including clinical vignettes localizing to lesions within the central (CNS) and