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NEUROLOGICAL PRESENTATIONS OF RARE CHLOROMAS IN THE CONTEXT OF HAEMATOLOGICAL MALIGNANCY

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10.1136/bmjno-2021-ANZAN.84

Objective(s) To describe the spectrum of neurological presentations of chloromas.

Method Two case reports.

Results A 72 year-old female presented with a right-sided cavernous sinus syndrome on a background of a myeloproliferative disorder. MRI brain demonstrated a FLAIR hyperintense lesion centred on the right cavernous sinus. Cerebrospinal fluid (CSF) was acellular with negative cytology and flow cytometry. FDG PET/CT demonstrated diffuse marrow hypermetabolism, hepatosplenomegaly and focal FDG uptake in the cavernous sinus and a remote paraspinal region, suspicious for chloromas. The patient developed pancytopenia with blasts, and tumour lysis syndrome (TLS) consistent with transformation to acute myeloid leukaemia (AML). The patient was given pulse methylprednisolone, hydroxyurea and external beam radiotherapy to the cavernous sinus lesion with symptomatic improvement. The second case is of a 76 year-old male who presented with progressive lower limb weakness with acute faecal incontinence. This was on a background of AML treated with induction STIMULUS (cytarabine and thioguanine) followed by remission confirmed on a recent bone marrow biopsy. CSF showed a marked lymphocytosis with many undifferentiated cells, and flow cytometry was consistent with AML. An MRI whole spine demonstrated a solitary avidly enhancing intramedullary T11 cord lesion with associated oedema. In the context of AML and CSF pathology this was thought to reflect an intramedullary chloroma. The patient was treated with external beam radiotherapy, pulse intravenous methylprednisolone and intrathecal chemotherapy with symptomatic improvement.

Conclusion These two cases demonstrate the diversity of neurological clinical presentations of chloromas, an unusual collection of leukaemic cells exerting mass-like effect.

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BILATERAL ABDUCENS NERVE PALSIES FOLLOWING BILATERAL MIDDLE MENINGEAL ARTERY EMBOLISATION FOR CHRONIC SUBDURAL HAEMORRHAGE

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10.1136/bmjno-2021-ANZAN.85

Background Middle meningeal artery embolisation (MMAE) has recently been proposed as a treatment for subdural haemorrhage (SDH). MMAE aims to decrease the vascular supply to abnormal membranes produced in response to dural space inflammation in SDH.

Methods/Results We report a case of bilateral abducens nerve palsies following bilateral MMAE. A 37-year-old male with Type 1 diabetes, previous traumatic brain injury, and excessive alcohol intake presented with increasing headaches and falls. Brain imaging revealed bilateral SDH with minimal midline shift to the right (2-3mm). He subsequently underwent bilateral MMAE. Immediately post operatively, he noted new binocular horizontal diplopia, with bilateral abducens nerve palsies clinically. Repeat brain imaging revealed stable SDH with new punctate foci of diffusion restriction bilaterally – though none that would explain his abducens nerve palsies. There were no brainstem infarctions and there was no midline shift. 2 month post-operative review showed significant improvement in his bilateral abducens nerve palsies.

Conclusions The vascular supply to the abducens nerve is rich, with multiple external carotid artery and internal carotid artery branches, therefore abducens nerve ischemia is rare. Previous studies with provocative lidocaine testing into the middle meningeal artery for other endovascular procedures showed 3 patients developed transient abducens nerve palsy. There are only two cases of transient diplopia within the MMAE related literature, and it is unclear whether these were CN VI palsies. To our knowledge this is the first reported case of bilateral abducens nerve palsies post MMAE, possibly from indirect ischemia post embolisation of the middle meningeal artery.

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AN UNEXPECTED CAUSE OF OPHTHALMOPLEGIA AND AREFLEXIA: THE PUPILS HAVE IT

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10.1136/bmjno-2021-ANZAN.86

Introduction We describe a case of botulism and its differentiation from acute neurological presentations.

Case A 35 year-old man presented with dysphagia, subjective jaw numbness, dyspnoea and vertigo. He denied alcohol intake but had injected methamphetamines and developed symptoms shortly after. 48 hours post-injection, he was drowsy and developed a complete internal and external ophthalmoplegia, an absent gag reflex with slow tongue movements and facial diplegia with sparing of distal muscle groups. His reflexes were initially present but became absent five hours later. There were no sensory or cerebellar findings. Blood cultures were taken given his history of intravenous drug use.

Neuroimaging did not note the presence of a posterior circulation infarct. A lumbar puncture did not demonstrate cytoalbuminological dissociation, and antibody testing for myasthenia gravis and Guillain Barre Syndrome variants were negative, although he was commenced on empirical IVIg prior to these results. He required intubation on day three of admission due to hypoxia secondary to aspiration but needed minimal ventilatory support.

Neurophysiological findings were consistent with a presynaptic neuromuscular junction disorder. Blood cultures noted clostridium botulinum with detection of clostridium botulinum toxin B. Antitoxin was administered on day four of presentation with slow but gradual improvement in his neurology and he was extubated on day 16.

Conclusion Acute causes of bilateral ophthalmoplegia include Wernicke's encephalopathy, Miller-Fisher Syndrome (MFS) variant of Guillain Barre Syndrome, brainstem stroke, myasthenia gravis and botulism. Of these, only MFS and botulism will cause both internal and external ophthalmoplegia.

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AN INTEGRATED NEUROGENOMICS CLINIC – 28-MONTHS EXPERIENCE AND OUTCOME OF A TERTIARY REFERRAL CENTRE

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10.1136/bmjno-2021-ANZAN.87

Objectives To retrospectively review attendance and outcomes of a single centre, integrated multi-disciplinary (MDT) neurogenomics clinic at St Vincent's Hospital, Sydney.

Methods An audit of patients who attended the neurogenomics clinic was conducted over a 28-month period from 2017 to 2020. The clinic comprises of neurologists, clinical geneticists and genetic counsellors assessing each of the patients concurrently during the consultation.

Results In the audit period 99 patients were referred spanning 45 different clinical diagnoses. Following MDT assessment, 23% (23/99) of referring diagnoses were revised. Seventy-nine patients (80%) underwent genetic testing. The type of genetic tests ordered includes 41 exome-based panels, 14 whole genome sequencing, 13 single gene tests, 30 repeat expansion disorders and 2 chromosomal microarrays. Molecular confirmation was achieved in 22 patients following testing a yield of 28% (22/79); of which, 2% had their clinical diagnosis revised following testing. Overall, a diagnosis was achieved in 29/99 patients (29%), of whom 7 patients' diagnosis was achieved without genetic testing. From referral to the results of genetic testing, 25% (25/99) of patients had their diagnosis revised as a result of MDT input.

Conclusions Provision of an integrated multidisciplinary neurogenomics clinic in a tertiary setting provides an invaluable service with a diagnostic yield of 28%. This model provides a gold standard for diagnostic evaluation of patients with suspected neurogenetic disorders. Psychosocial benefits for patients, such as convenience/satisfaction of an MDT clinic, psychological closure for patients/families, and reproductive options enabled by achieving a genetic diagnosis, will be audited via patient survey.

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ATYPICAL PRESENTATIONS AND COURSE OF JC VIRUS INFECTION

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10.1136/bmjno-2021-ANZAN.88

Objective(s) There is increasing evidence that the spectrum of JC virus (JCV) CNS disease includes novel syndromes other than Progressive Multifocal Leukoencephalopathy (PML), the appreciation of which is increasingly important in the context of MS therapies and immunodeficiency states. Our objective is to describe unusual presentations of JCV infection to heighten clinician awareness.

Method Three case reports.

Results A 56 year-old male HIV+ with decades of viral suppression and normal immune function presented with 1 month of non-specific headache that spontaneously resolved despite an MRI showing a new area of PML and CSF being JCV DNA+. He had had two similar episodes in 2003 and 2014 with MRI scans consistent with PML, CSF JCV PCR positivity once and brain biopsy positive twice. Another 61 year-old male presented with subacute binocular vision loss and was found to have newly diagnosed HIV and JCV DNA detected in CSF. MRI brain only demonstrated symmetrical chiasmohypothalamic enhancement. There has been some improvement after cART and steroids for IRIS. Thirdly, a 65 year-old presented with subacute progressive confusion and behavioural disturbance, one year post bilateral lung transplantation. MRI brain demonstrated no evidence of PML but CSF on three occasions demonstrated a progressively increasing JCV DNA load. Despite reduction in his immunosuppression the patient developed profound encephalopathy without localising features leading to death two months later.

Conclusion These cases emphasize the atypical presentations of JCV: chronic relapsing, unusual symmetrical visual pathway disease, and non-localizing encephalopathy without MRI evidence of PML.

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CLINICAL VARIATION IN THE USE OF DISEASE-MODIFYING THERAPIES FOR MULTIPLE SCLEROSIS BETWEEN DIFFERENT STATES AND TERRITORIES IN AUSTRALIA, 2019–20

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10.1136/bmjno-2021-ANZAN.89

Objectives In Australia, patient costs for multiple sclerosis disease-modifying therapies (DMTs) are government-subsidised under the Pharmaceutical Benefits Scheme (PBS). Unlike many countries, any DMT can be selected for a patient who fulfils treatment criteria. We aimed to determine whether clinical variation exists in the use of DMTs in different Australian states and territories.

Methods DMT usage was determined from PBS prescription dispensing statistics for all DMTs available in Australia from July 2019 to June 2020.¹ Pa

Results There were 176,163 prescriptions for DMTs dispensed for an estimated 18,596 patients, with a total drug cost of AU\$344.1 million and mean drug cost per patient of AU\$18,501. Most patients were treated with oral (41.7%) or infusion (33.8%) maintenance DMTs. Fewer received platform injectable DMTs (15.3%) or immune reconstitution DMTs (9.1%) in the study period. The most common DMTs were fingolimod (23.5%), ocrelizumab (21.8%), natalizumab (12.1%), and dimethyl fumarate (10.8%). Platform injectable DMTs were most common in ACT (20.1%) and least common