Post mortem examination diagnosed *Balamuthia mandrillaris* infection which was confirmed by PCR testing of brain tissue and cerebrospinal fluid.

This report details the neuropathological distribution of parenchymal cerebral necrosis, associated with trophozoite and encysted amoebic forms, which suggests a haematogenous portal of entry for the protozoa into the brain. We present detailed neuropathology findings on the third case of *Balamuthia mandrillaris* encephalitis originating in Western Australia to be reported in the literature.

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FETAL DYSPLASTIC MEGALENCEPHALY WITH ANGIOMATOSIS AND A PATHOGENIC MTOR MUTATION

A. R. W. Kang^{1,2}, J. E. Dickinson³, B. Kamien⁴, D. Azamov⁵, R. Lakshmanan⁶, J. M. Dyke^{1,7}, V. Fabian¹

¹PathWest Neuropathology, Royal Perth Hospital, Perth, WA, Australia; ²School of Medicine, University of Notre Dame, Perth, WA, Australia; ³Division of Obstetrics and Gynaecology, The University of Western Australia, Perth, WA, Australia; ⁴Genetics Services of Western Australia, King Edward Memorial Hospital, Perth, WA, Australia; ⁵Department of Diagnostic Genomics, PathWest QEII Medical Centre, Perth, WA, Australia; ⁶Medical Imaging, Perth Children's Hospital, Perth, WA, Australia; and ⁷School of Medicine and Pharmacology, The University of Western Australia, Perth, WA, Australia

Dysplastic megalencephaly (DMEG) is a rare cerebral malformation defined by overgrowth and extensive cortical dysplasia of the cerebral hemispheres, usually due to MTOR signalling pathway gene mutations.

A 22 week gestation male fetus was diagnosed with macrocephaly on ultrasound. Subsequent brain MRI demonstrated features of DMEG, including macrocephaly, ventriculomegaly, polymicrogyria, enlarged corpus callosum, enlarged ganglionic eminences and cortical dysplasia. At 35 weeks gestation, the fetus was delivered by caesarean section with a birth weight of 3945 g (>99th percentile). The head circumference was 41cm (>99th percentile) and brain weight 674.5 g (expected 256 ± 70 g). The neonate died at day one of life.

Massive parallel sequencing on amniotic fluid identified a mosaic missense variant in the MTOR gene: LRG_734t1:c.6644=C>Tp.(Ser2215=Ser2215Phe), confirmed by Sanger sequencing. Neuropathology confirmed the neuroradiology findings. On histology dysmorphic neurones, balloon cells, multifocal nodular neuronal heterotopia and focal leptomeningeal glioneuronal heterotopia were identified. Widespread Sturge-Weber syndrome-like features of cerebral and brainstem leptomeningeal and parenchymal angiomas and cortical microcalcification were present.

We describe an unusual case of dysplastic megalencephaly with a pathogenic MTOR mutation, cortical microcalcification and additional Sturge-Weber syndrome-like features in the brain. The Sturge-Weber syndrome-like features have not been reported in DMEG, expanding the neuropathology phenotypic expression of this disease.

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DIFFUSE IDIOPATHIC PULMONARY NEUROENDOCRINE CELL HYPERPLASIA (DIPNECH) – A CASE REPORT

Joanna Kang, Karen Whale

Anatomical Pathology Department, Hobart Pathology, Hobart, Australia

Diffuse idiopathic pulmonary neuroendocrine cell hyperplasia (DIPNECH) as defined by the WHO is a generalised proliferation of pulmonary neuroendocrine cells that may be confined to airway mucosa or invade locally forming tumourlets or carcinoid tumours.

We report a case of a female aged 82 who presented with an incidentally detected right upper lobe lung lesion, on a surveillance scan following breast cancer. She had an associated chronic dry cough. Her medical history includes childhood asthma. Preoperative lung function tests were normal. Biopsies of this lesion showed a well differentiated neuroendocrine tumour (carcinoid). She underwent a lobectomy which showed one hilar nodule and one parenchymal nodule. Histopathology showed multiple foci of neuroendocrine cell hyperplasia; as well as a 6 mm carcinoid within the bronchial wall at the hilum, 6 mm carcinoid within lung parenchyma and multiple tumourlets. Although uncommon, this is an important entity to recognise as it is usually treated with steroids, and carcinoid tumours that develop are indolent.

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TALL CELL CARCINOMA WITH REVERSED POLARITY – A CASE REPORT

Anurita Kar, Fouzia Ziad

Anatomical Pathology Department, Waikato Hospital, Hamilton, Waikato, New Zealand

Tall cell carcinoma with reversed polarity is a rare subtype of invasive breast carcinoma. Immunohistochemical and molecular research show that it is a distinct entity. It is negative for thyroid specific markers.¹ It also has its own unique molecular mutations