

**Introduction:** Intraventricular colloid cysts account for approximately 1% of all intracranial tumours. Their benign nature and potential for total cure, balanced against the possibility of precipitous neurological decline, captured neurosurgeons' interest in the last century.

**Methods:** This study includes all third ventricular colloid cysts that were treated endoscopically (17 cases) in our centre over a period of 18 years. We also include 3 cases of microsurgical removal as control cases. Case analysis was based on review of clinical and operation notes and imaging. We used intra-operative high-quality video footage to correlate post-operative complications with intraoperative findings. Type and duration of symptoms pre-operatively, operative time duration, length of stay, post-operative complications and functional status after resection were noted.

**Results:** The period between onset of symptoms and diagnosis was on average 12.9 months. The commonest symptom experienced was headache (88%). All patients experienced significant functional improvement post-operatively. Reviewing the intra-operative footage, 4 patients had considerable intra-operative bleeding and two had significant colloid escape. Average operating time was 90.6 minutes.

**Conclusions:** Our findings suggest that treating third ventricular colloid cysts endoscopically is a viable option compared to microsurgical approaches offering advantages in terms improvement of symptoms, post-operative complications, operative time and re-operation rates.

#### 0732: QUANTITATIVE STUDY OF WHITE MATTER NEURONS IN HUMAN TEMPORAL LOBE RESECTION WITH MILD MALFORMATION OF CORTICAL DEVELOPMENT (MCD) TYPE II

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**Introduction:** Epilepsy is the most common neurological condition affecting any given time between 0.5% and 1.0% of the general population in developed countries. It is difficult to diagnose mMCD as changes to the number of white matter neurons are not obtained using MRI. It is unclear how the number of white matter neurons is related to epilepsy and post-operative outcomes. The main research question is to establish if the number of neurons in the temporal lobe white matter are high and if so does that result in epilepsy. Our aim was to set up a rapid reliable method of quantifying white matter neurons that could be applicable in a diagnostic setting.

**Methods:** 144 cases were used from the National Hospital for Neurology and Neurosurgery Institute of Neurology Resected temporal cortical specimens were fixed, processed and paraffin embedded. 7/20 micron sections were immunolabelled (Neuronal N) a marker of neurons. White matter neurons were identified and analysed using Definiens software.

**Results:** The findings suggest that the 'single' neurons in the white matter of the temporal lobe are higher in epilepsy than in control cases.

**Conclusions:** There is no significant relationship between the number of white matter neurons and clinical factors such as age of seizure onset, epilepsy history, seizure frequency and post-op outcomes.

#### 0926: COUNTING THE COST OF NEGLIGENCE IN NEUROSURGERY

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**Introduction:** Medical negligence claims are a prevalent feature of neurosurgical practice in the UK. The aim of this study was to analyse available data on negligence claims for neurosurgical conditions treated by National Health Service clinicians in England and Wales.

**Methods:** Information pertaining to Neurosurgical negligence claims filed with the NHS Litigation Authority between 2002 and 2012 was obtained. Abstracts of the cases were utilised to obtain the following data: underlying pathology, injury severity, nature of the misadventure and claim value.

**Results:** Of 795 cases, 612 were closed (77%). The number of claims per year ranged from 50 in 2003/4 to 118 in 2011/12. Overall, 302 were related to acute presentations (49%). Common pathologies implicated included: Spinal (52%), CNS neoplasm (14%), vascular (12%) and hydrocephalus (7%). The commonest causes of misadventure were: delayed/incorrect diagnosis (17%, £16.7million), neurological damage (15%, £11.7million) and inadequate surgical performance (13%, £4.7million). The total value of closed claims was £67.9 million. The average claim value quadrupled between 2003/4 (£40,635/case) and 2007/08 (£196,579/case).

**Conclusions:** Delayed or incorrect diagnosis was the most costly cause of misadventure, with spinal pathologies commonly implicated. Neurosurgical litigation represents a significant source of economical burden to the NHS which is forecast to worsen.

#### 1082: CHALLENGES IN HISTOLOGICAL IDENTIFICATION OF THE PEDUNCULOPONTINE NUCLEUS

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**Introduction:** The pedunculo pontine nucleus (PPN) remains an experimental target for deep brain stimulation (DBS) in Parkinson's disease (PD). PPN histopathology studies lag behind clinical studies and are essential to the characterisation of PPN function and pathology. We aimed to identify the location of the PPN in post-mortem brain tissue.

**Methods:** Brain tissue was used from the Parkinson's UK Tissue Bank under approval of the Wales Research Ethics Committee. Standard tissue fixation and immunohistochemistry staining was carried out using commercial antibodies. Post-mortem tissue from 10 PD and 5 disease-free controls. Brain tissue was sampled axially across the pontomesencephalic junction (PMJ) at a thickness of 3-5mm. Axial 7um sections at 50um intervals were stained using immunohistochemistry with an antibody against choline acetyltransferase (ChAT).

**Results:** The PPN was not consistently identified. The PPN was only identified in the tissue of 1 PD patient, with ChAT-positive staining present laterally to the decussating cerebellar peduncle. Various other ChAT-positive structures were also identified.

**Conclusions:** The PPN is a difficult area to histologically define. The PMJ is too caudal to consistently visualise the PPN. ChAT immunohistochemistry is not a specific marker for the PPN and results can be confounded by other ChAT-positive structures.

#### 1189: THE EVALUATION OF THE CLINICAL PRESENTATION, MRI FINDINGS AND IMMEDIATE MANAGEMENT OF POTENTIAL CAUDA EQUINA SYNDROME REFERRALS IN A TERTIARY NEUROSURGICAL CENTRE

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**Introduction:** Cauda equina syndrome (CES) is one of the commonest emergency conditions referred to tertiary neurosurgical services. The medico-legal implications of delayed diagnosis and the non-availability of out-of-hours MRI in many district hospitals contribute to the high referral rate. We evaluated the threshold for emergency referral, and immediate management.

**Methods:** Retrospective review of prospectively collected data. 663 emergency consecutive CES referrals (2010 – 2013) were analysed against clinical guidelines for CES referrals.

**Results:** Of 663 patients (mean age 49yrs, range 16-89) only 69.4% fulfilled criteria for emergent scanning and referral. 60.5% had urinary symptoms (threatened or complete), 16.6% a progressive motor deficit and 1.1% had intractable sciatica. 41% had not undergone MRI imaging at the time of referral. 12% met the clinical and radiologic criteria for CES. 7.4% were referred to the emergency service despite there being no significant pathology on the MRI scan. 36.7% had other spinal pathology and were offered outpatient appointments. 17% of patients were discharged from all follow-up at the time of referral.

**Conclusions:** 30.5% of referrals did not require emergent scanning, and 7.4% were referred despite having no significant pathology on MRI imaging. Improved education and MRI provision, offer opportunities to improve efficiency and optimise resource utility.

#### 1218: CHANGING PATTERNS IN REFERRAL, BED STATE AND LENGTH OF STAY IN A LONDON NEUROSURGICAL CENTRE

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**Introduction:** The study aimed to determine the effects of resource and financial pressures within the NHS on patterns of referral, bed state and length of stay patterns.

**Methods:** Data was collected on all referrals (21,266) made to a single neurosurgical centre from January 2001 to December 2012 on electronic databases. Data was analysed using linear regression.

**Results:** Neurosurgical referrals have increased from 1080 patients in 2001 to 2175 patients in 2012 ( $p < 0.01$ ,  $R^2 = 0.79$ ). The number of patients accepted has also increased from 506 in 2001 to 1229 patients in 2012 ( $p < 0.01$ ,  $R^2 = 0.63$ ). Nevertheless, the number of beds available has decreased from 29