A 54 year old man is described with signs compatible with ocular myasthenia gravis and an apparent excellent response to pyridostigmine. Subsequent clinical progression and further investigation suggested the presence of an inflammatory brain stem lesion, which responded to corticosteroid therapy. Clinical relapse, including the development of central neurogenic hyperventilation, led to a brain stem biopsy, confirming a diagnosis of B cell lymphoma. This case illustrates the propensity of primary CNS lymphoma (PCNSL) to mimic other conditions. Brain MRI is mandatory in presumed "test negative" ocular myasthenia with atypical clinical findings. Spontaneous regression of PCNSL or response to corticosteroids is common and should not mitigate against the diagnosis. Histopathological confirmation should ideally be made before starting therapy, as this may obscure or delay the correct diagnosis. Although PCNSL is rare, it must be considered in all patients with brain stem syndromes, and in all patients 50 years or older with contrast enhancing focal lesions.

**CASE HISTORY**

A 54 year old white man presented with a 2 month history of constant binocular vertical diplopia, present in all directions of gaze. There was no history of limb weakness, dysarthria, or dysphagia. On examination he was found to have a partial left non-fatiguable ptosis, right over left hypertropia, and reduced elevation of the left eye in abduction. There was no nystagmus. A presumptive diagnosis of ocular myasthenia gravis was made; however, repetitive stimulation and single fibre EMG showed no evidence of a neuromuscular junction disorder and antiacetylcholine receptor antibodies were negative. Contrast enhanced CT of the head and orbits and chest radiography were normal. There was an apparent response to pyridostigmine therapy and the symptoms resolved over the next 3–4 months without treatment.

Eight months later he re-presented with diplopia and gradual onset left sided numbness and weakness. He also complained of unsteadiness of gait, slurred speech, and difficulty in swallowing. There was no fever, weight loss, rash, or orogenital ulceration. On examination he was dysarthric but not aphasic. There was a right over left skew deviation in all directions of gaze. The respiratory rate was 23/minute, regular and unaltered and the pupils were round and reactive morphology and there was no growth after culture. All routine blood tests including erythrocyte sedimentation rate and serum electrophoresis were normal except for a mild hypogammaglobulinaemia.

Two months before the initial presentation he had taken a short vacation to Vietnam but had not had any ill health. There was a 1 year history of depression treated with citalopram. No relevant family history was obtained.

T2 weighted (fig 1 A) and fluid attenuated inversion recovery (FLAIR) (fig 1 B) MRI of the brain showed a confluent high signal lesion extending from the posterior aspect of the pons and tectal plate through the posterior aspect of the brain stem and cerebral peduncle to involve the right thalamus, posterior limb of the internal capsule, and the corona radiata. After administration of gadolinium nodular enhancement was seen in the pons and cerebral peduncle. There was a mild mass effect associated with the lesion. Examination of CSF disclosed a raised protein of 1.26 g/l, normal glucose, and no oligoclonal bands. The CSF contained 2 white cells/mm³ with reactive morphology and there was no growth after culture. All routine blood tests including erythrocyte sedimentation rate and serum electrophoresis were normal except for a mild hypogammaglobulinaemia.

The patient was started on a 3 day course of intravenous methylprednisolone followed by oral corticosteroids. One week after starting treatment, his diplopia, gait, and speech had improved and there was increased velocity of saccadic eye movements. However, within 3 weeks he had returned to the pretreatment neurological state despite continuing steroid therapy and repeated falls resulted in a fractured distal fibula. The patient’s family reported a change in affect and neuropsychological tests indicated mild intellectual underfunctioning and frontal lobe dysfunction.

A whole body gallium scan and CSF ACE concentrations were normal. Mantoux test (1:1000/10 units) was unreactive (as expected after steroid therapy). Syphilis, Lyme, rickettsial, treponemal, schistosomal, legionella, mycoplasma HIV and HTLV1 serology, CSF polymerase chain reaction for JC virus and Whipple’s disease, and an autoantibody screen were negative.

One month after initial presentation there was severe spastic dysarthria with slow tongue movements, brisk jaw jerk, bilateral facial palsy, and loss of the gag reflex. There was bilateral hypertonia, ankle clonus, pyramidal weakness, brisk reflexes and extensor plantar responses. Bilateral appendicular ataxia was now present. Recurrent aspiration secondary to progressive dysphagia necessitated nasogastric feeding. Repeat MRI of the brain showed progressive disease despite steroid therapy and CSF protein had increased further to 1.97 g/l. A stereotactic biopsy was advised but refused and treatment was continued with 60 mg prednisolone daily.

The patient subsequently developed involuntary hyperventilation. On examination he was apyrexial, alert, and oriented. The respiratory rate was 23/minute, regular and unaltered.

**Abbreviations:** PCNSL, primary central nervous system lymphoma; FLAIR, fluid attenuated inversion recovery.
ment with steroid therapy, which gave both him and the clinic a short lived neurological recovery. This case is an example of a condition simulating myasthenia and provides an argument for biopsy in cases of isolated ocular myasthenia on the basis of clinical findings, normal CT of the brain and orbits and an apparent response to pyridostigmine.

Steroids are cytotoxic to malignant lymphocytes and their use is controversial. Spontaneous regression in immunocompetent patients has been reported in PCNSL and may be due to a cell mediated immune response against the tumour, as is reported in the literature. Primary central nervous system lymphoma is a rare condition; however, it must be considered in the differential diagnosis of all brain stem syndromes. Brain MRI is mandatory and must be interpreted in the context of the clinical picture. The extraordinary frequency of primary cerebral lymphoma among the few patients with tumour induced central neurogenic hyperventilation suggests that lymphoma must be high in the differential diagnoses and should guide therapy. If the diagnosis of PCNSL is entertained, steroid therapy should be avoided and early histological confirmation sought but often, as in this case, biopsy may be undesirable when a temporary response to steroids is found and because of potential complications. Finally, spontaneous clinical or radiological improvement after steroid therapy should not mitigate against the diagnosis of PCNSL.

REFERENCE


Figure 1 (A) Axial T2 weighted and (B) coronal FLAIR MRI showing the extent of abnormal high signal involving the posterior brain stem extending into the right thalamus.

**NEUROLOGICAL STAMP**

Anton Freiherr von Eiselsberg (1860–1939)

Eiselsberg, a pupil of Billroth, was for many years professor of surgery at Vienna, where he was long recognised as the leader in neurosurgery in Austria and a bold and skilful operator. He was the first to notice tetany after surgery for goitre (1890), and he produced tetany experimentally (1892) by excising a cat’s thyroid and transplanting it into the abdominal wall. Eiselsberg was a prominent worker in pituitary surgery. He resected spinal tumours and studied the early treatment of the handicapped. In 1939 when aged 79 he was killed in a train accident.

He was honoured on the 100th year of his birth by a stamp issued by Austria in 1960 (Stanley Gibbons 1355, Scott 653).