Thyrotropic Hashimoto's encephalopathy

Thyroid disease is associated with several neurological disorders, of which one of the rarest and least well understood is Hashimoto's encephalopathy. This was originally postulated to be a distinct disease entity by Brain et al in 1966 and there have subsequently been case reports substantiating the hypothesis that it represents a unique condition. The characteristic features are a subacute onset of confusion with altered consciousness, seizures, and events that respond to steroids and which occur in the context of high anti-microsomal antibody titres. To date all the patients reported have been either euthyroid or hypothyroid at the time of presentation. We present a case of Hashimoto's encephalopathy with pronounced thyrotoxicosis, that was successfully managed with steroids, carbimazole, and propanolol. A 49-year-old woman presented with a six month history of weight loss and a three month history of proximal arm pain and hand tremor. Two weeks before admission she developed a progressive left sided weakness involving the arm and leg in conjunction with a left hemianesthesia. On examination at admission she was flushed, feverish, and tachycardic with a hyperdynamic circulation. Her thyroid gland was slightly enlarged but there was no associated bruit. Cranial nerve examination disclosed left visual inattention as the only abnormality. Noteworthy was the absence of altered mental state, absence of focal neurological signs, and the absence of any focal neurological signs. She had wasting of the shoulder girdle muscles and deep tendon reflexes were normal. Furthermore, her remarkable steroid responsiveness suggests an autoimmune cause for her drug-induced multifocal encephalopathy.

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Letters to the Editor

 recently it has become clear that hyponatremia in the cerebral salt wasting syndrome is accompanied by hypovolaemia. We report a patient with cerebral salt wasting after aneurysmal subarachnoid haemorrhage who showed remarkable charactertic features during surgery. A 46 year old woman was admitted with severe headache and vomiting. Physical examination was unremarkable. Brain CT showed a subarachnoid haemorrhage with blood in the suprasellar cisterns and the left Sylvian fissure. Two days later she developed bradycardia and atrial fibrillation during surgery. Salt and fluid loss were fully compensated by 0.9% NaCl infusion. On day 9 she was found unconscious with respiratory failure and bradycardia and CT disclosed a recur- rent subarachnoid haemorrhage in the left Sylvian fissure. Two days after surgery diuresis decreased to an increase in CSF production and a decrease in natriuresis. The patient regained consciousness and she gradually recovered from a mild aphasia and right facial weakness. However, from day 12 onwards she again developed a progressive polyuria of up to 21 200 ml per day (on day 22) and a 24 hour renal sodium loss of 2630 mmol. The serum sodium was stable (142 mmol/l), and the colloidal osmotic pressure was between 18-7 and 24-0 mm Hg. Serum ADH concentrations were normal. Treatment with fludrocortisone had no effect on renal sodium loss. Despite the increase in diuresis, plasma atrial natriuretic protein concentrations were within the nor- mal range (up to 11 pmol/l, normal 3-23 pmol/l); atrial natriuretic protein in CSF was not assessed. Daily transcranial Doppler sonography was indicative of cerebral vasospasm and therefore angiography was postponed until day 22. On day 12, the left middle cerebral artery was disclosed, which was successfully clipped on day 24. Whereas the diuresis 24 hours before and after the neurosurgical procedure was 600-700 ml/hour, the mean intraoperative production of urine was 150 ml/hour. The largest reduction in diuresis was seen while the dura was open. Soon after suturing the dura, urine production rose to preoperative values. Two days after surgery diuresis decreased remarkably and was back to normal on the fourth day after operation. Repeated measure­ ments of plasma sodium were also nor- mal. The patient had fully recovered two months after the operation. Our patient had a very pronounced uri­ nary sodium loss of up to 60 g per day. Opening of the dura resulted in a decrease in diuresis of 77.5%. Both a reactive increase of CSF production and a decrease in the intracranial pressure may have been important. Because an increase of atrial natriuretic protein in CSF (and maybe other humoral factors) results in a decrease in CSF produc­ tion, an increase in CSF production after loss of CSF through the open dura may have induced a decrease of atrial natriuretic pro­ tein, resulting in a decrease in natriuresis. In patients with subarachnoid haemor­ rhage Döczi and Bodosi found a linear cor­ relation between urinary plasma atrial and atrial natriuretic protein concentrations in CSF.1 So lowering the intracranial pres­ sure might result in reduced concentrations of atrial natriuretic protein in CSF and lead to an increase in CSF production and a decrease in natriuresis. If either assumption is correct, continuous CSF drainage—for example, by an external lumbar drain—may be an effective treatment for the cerebral salt wasting syndrome, espe­ cially in more severe cases.

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A patient with cerebral autosomal dom­ inant arteriopathy with subcortical infarcts and leucoencephalopathy (CADASIL) confirmed by sural nerve biopsy

We present a 55 year old woman with a history of a burning sensation on her tongue and tingling as well as weakness of the left side of her face and her left arm. Six months later she com­ plained of numbness and weakness of her left arm and leg, from which she recovered slowly. No risk factors such as arterial hypertension, diabetes, or migraine were reported. Neurological examination showed a slight left sided ataxia, hemiparesis, and hypophonia. Routine tests showed reduced cognitive performance and flexibility, a deficit in learning and memory, and abnormal visual constructional abilities which were compatible with a subcortical dementia. Brain MRI showed extensive hypointense areas in the periventricular and subcortical regions, in addition to subcortical white matter on both sides, mainly in the periventricular and adja­ cent subcortical regions (fig 1).

Family history showed that the mother of the patient died at the age of 52 with a his­ tory of a stroke. The index patient and one of her parents had MRA changes similar to the index patient, and one had had recurrent episodes of aphasia, headache, and hemianopia. Six members of this family, three affected and three healthy, have been genotyped with eight chromosome 19 markers spanning the CADASIL locus. One family member was not found with any of those markers. Maximum lod scores were obtained with markers D19S226, D19S253, and D19S199, strongly suggesting that this family is linked to the CADASIL locus.

A 2 cm long fragment of the sural nerve was processed for light and electron microscopy. Six fascicles were present. Around 120 small and large vessels were counted in the endoneurial and epineurial spaces. The largest epineurial arteries (size up to 100 μm) appeared normal. Small epineurial arterioles were normal and unchanged in paraffin sections. The arterio­ nal wall was not thickened on semi-thin sec­ tions and no increase in number of nuclei was evident. The perineurium was not thick­ ened and there was no increase of endo­ neurial connective tissue. The density of myelinated fibres was 6600/mm² (normal range for the sural nerve for this age 6000–8000/mm²). Myelin degradation products were not encountered.

Electron microscopy showed changes in a few epineurial vessels, consisting of electron dense granular deposits along the outer aspects of the vessel walls (fig 2A). Most of these granules were on the abluminal surface of pericytes and less often on endothelial cells. Most granules measured 0.2 to 0.5 μm in diameter. However, some measured up to 1.2 × 0.8 μm. Dense de­ positions were frequently located in thickened basal laminae and were often pushing back the cell membrane of an adjacent pericyte (fig 2B and C). Most dense deposits were round or oval but some were flat or disc shaped and oriented parallel to the cell sur­ face. Most dense deposits along the outer aspects of the vessel walls (fig 2A).

We present a 55 year old woman with a history of recurrent pulmonary embolism from the age of 55. At the age of 40 she experienced a feeling of heaviness in her left arm for about two days. Fifteen years later the patient described episodes of a burning sensation on her tongue and tingling as well as weakness of the left side of her face and