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Brown-Séguard's description of spontaneous cerebellar haemorrhage

A founder-physician of the National Hospital, Queen Square, pioneer investigator of hemisection of the cord, Brown-Séguard should also be remembered for showing that the adrenal glands secrete a vital substance which we now know as cortisol.

Born in 1817, his father was a Philadelphian sea captain, Charles Edward Brown, who travelled to Mauritius and married Henriette Charlotte Perrine Sequard. He came to Paris with his mother and read Medicine, studying under circumstances of extreme poverty. Always a traveller, he taught midwifery in New York and Jurisprudence in Virginia. Through the commendation of Sir James Paget he was appointed at Queen Square in 1859, was awarded the FRCS and the FRS in 1860. Darwin sought his acclaim for his *Origin of Species*; he corresponded with Charcot, Huxley and Pasteur. Leaving London in 1863 he continued to hold posts at Harvard, New York, Geneva and finally settled in Paris taking his friend Claude Bernard's chair. He became a French citizen. He died of a stroke in 1894 and is buried at Montparnasse.

He provided a classic description of primary cerebellar haemorrhage,¹ delivered at the Royal College of Physicians in February 1861. Brown-Séguard was then physician to the National where the same topic was covered in a combined lecture published in the *Lancet* "Lecture 111—part 1. Diagnosis of Haemorrhage in the Cerebellum."² He did not claim priority of description, referring to the papers of Hillairet in 1858³ and somewhat scathingly to the work of M. Serres (vide infra). He described: "1. *Premonitory Symptoms*: Headache, giddiness, vertigo with involuntary movements of the head on one side, numbness, formication ... drowsiness, have been noted. 2. *Coma*: 1st. The intellectual faculties may remain entire, although very grave symptoms of paralysis appear. 2nd. ... The patient being in a state of torpor and speaking incoherently, ... still able to understand. 3rd. a deep coma exists out of which it is hardly possible to rouse the patient, except for a few moments and then his only sign of intellectual life consists of opening his eyes for a short time. 3. *Paralysis*: 1st. In many cases ... no local paralysis has been observed. The patients were weak on their limbs, or unable to stand up; 2nd. Hemiplegia is not of so frequent occurrence as it is in cases of cerebral haemorrhage, ... this paralysis has existed in the side opposite to that of the haemorrhage. 3rd. ... to distinguish the cerebellar haemorrhage from the cerebral, is the absence of facial paralysis in the first case and its almost constant existence in the second ... a paralysis of one side of the face can occur in cases of haemorrhage limited to one-half of the cerebellum, and produces considerable pressure on the pons Varolii ... the facial

paralysis would be on the side injured in the pons, while the paralysis of the limbs would be on the opposite side. 4th. ... general deficiency of power in muscles of the face ... loss of expression. 5th. ... no deviation of the tongue. 6th. Loss of speech is a less frequent symptom than in cerebral haemorrhage. 7th. A paralysis of the muscles of the globe of the eye and of masticatory muscles has not been noted. 8th. The pupils are sometimes contracted, sometimes dilated and rarely normal, ... therefore differ notably from the majority of cases of cerebral haemorrhage. 4. *Anaesthesia and Hyperaesthesia*: Anaesthesia is rare. ... In several cases hyperaesthesia has been observed. 5. *Alteration of Senses*: ... no difference therefore as regards the four head senses except that they are less frequently altered in cerebellar haemorrhage than in the cerebral. 6. *Convulsions, Contracture*: General or partial convulsions have been observed in about one fourth of the cases ... not above one tenth in cerebral haemorrhage. Convulsions are sometimes followed by contracture, or a tetanic rigidity. 7. *Erection of the penis*: M. Serres has published several cases ... not been noted by other writers ... this erection may be caused by an irritation of the pons or medulla. 8. *Vomiting*: This is a striking symptom of haemorrhage in the cerebellum. 9. *Pulse*: No difference between the cerebellar and cerebral haemorrhage ... rather a slow than a rapid pulse. 10. *Breathing*: More common to find difficulty in breathing in cerebellar haemorrhage than cerebral haemorrhage. Death is more frequent precisely on account of the greater difficulty in breathing."

Brown-Séguard's account tallies closely with more recent series.^{1,4} though modern descriptions stress the triad of constricted reactive pupils,¹ periodic respiration² and ipsilateral gaze palsy³ with a high incidence of trunkal ataxia and peripheral facial palsy.⁴ It was left to Ballance in 1906 to first treat the condition surgically, though his case was traumatic.⁵

JMS PEARCE

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