

Clinical Cases.

A FURTHER CONTRIBUTION ON THE COURSE OF THE OPTIC NERVE FIBRES IN THE BRAIN.

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In the last number of 'BRAIN,'¹ I recorded two cases bearing on the above subject. I beg leave to describe now the history and post-mortem account of another case, which again strongly supports the theory of a semi-decussation of the optic nerve-fibres, and presents also some other interesting neuro-pathological features.

Th. P., æt. 52, married, a plumber by trade, was admitted into the Manchester Infirmary on May 26th, 1881, suffering from hemiplegia, hemianæsthesia, and hemianopsia, all on the left side, and died at the Convalescent Hospital, Cheadle, on November 4th, 1881.

The following is a brief outline of the case as taken by Dr. R. Maguire, then clinical clerk:—

The *family history* is good. Patient does not know of any of his relatives suffering from gout or consumption; he has had five children, one of whom died when young from croup.

Previous history.—Has never had syphilis; his habits have been regular. When a boy had an attack of typhoid fever. He has always enjoyed good health, though much exposed to wet and cold, till four years ago, when he suffered from an attack of gout, since then he has often been troubled with bronchitis and asthma; during last winter he had an attack of lead colic. Twelve months ago he noticed that he had to get up often at night to pass urine, he had no pain in the head, no vomiting, no pains in his loins, or dropsy of any kind. About a month before admission he noticed his eyesight failing; the left eye being the worse; vision then became suddenly worse, so that he was almost blind, and could hardly

¹ Vol. IV. p. 543.

follow his employment. In a few days more he became suddenly paralysed on the left side, without any pain or loss of consciousness.

Condition on admission.—Patient is a spare man, fairly healthy in appearance. There is a little œdema of the eyelids, of both legs, and of the left arm; arcus senilis is well marked.

The patient is much depressed in spirits, and very emotional, but his intelligence is good; he, however, complains of slight loss of memory; he does not complain of any headache or vertigo; there is no aphasia.

There is slight left facial paralysis, affecting the lower facial muscles only. There is almost complete paralysis of left arm and leg; the leg is extended, the foot turned inwards; there are no traces of any contracture, and the arm and hand rest in any position in which they are placed.

The deep reflexes (patellar and ankle-clonus) are absent both from the right and left side.

The superficial reflexes (plantar, cremasteric, abdominal, epigastric and scapular) are absent on the left side, but normal on the right side.

There is complete anæsthesia of the whole of the left side, extending exactly to the middle line of the body. The patient feels tactile impressions very imperfectly, both in the trunk and the extremities of the left side; there is also analgesia of the left side, and when pricked with a pin in the arm the patient feels a peculiar sensation running up the arm towards the neck; if pricked in the leg a similar sensation runs up the thigh. The sense for temperature is likewise diminished on the left side.

The sense of taste and of smell is normal. Hearing is diminished on both sides, but more on the left than on the right. The vision is bad, and there is complete left hemianopsia; different colours are perceived on the right side in their physiological order, on the left there is complete absence of colour vision. Ophthalmoscopic examination of the eye shows swelling of the disc, numerous hæmorrhages, and white patches in the retina, chiefly round the papilla, but not round the yellow spot. The retinal arteries are scarcely visible, the veins over the papilla large and tortuous. The pupils are slightly dilated, but react, though somewhat sluggishly, to light.

There is no paralysis of any of the oculo-motor muscles.

The muscular sense is not affected on the left side. The muscles on the left side feel flabby, but there is no marked atrophy.

The electric contractility, to the galvanic and the faradic current, of the muscles on the left side is diminished.

There is no blue line on the gums. The tongue is large and moist, teeth marked and coated with a thick black fur. Appetite is good, there is no vomiting. Bowels confined. Defæcation perfectly under control. The liver dulness and splenic dulness normal.

The voice is rather hoarse, there is a slight cough, with scanty, frothy expectoration of muco-purulent character. There is no dulness over the region of the lungs. A few moist rhonchi are occasionally heard.

Pulse eighty, full and incompressible. The arteries are rigid and tortuous. The heart's apex beat is visible in sixth intercostal space, and is outside the nipple. Heart's dulness increased both in the vertical and transverse diameter. The heart sounds are loud, the first somewhat clangy. The first sound is reduplicated over the ensiform cartilage, the second over the pulmonary cartilage.

Micturition profuse, sometimes involuntary. Urine s. gr. 1009, pale, acid; contains a small quantity of albumen; no sugar. Microscopically, a few granular casts.

Diagnosis.—The case was looked upon as one of chronic Bright's disease, in which cerebral hæmorrhage had taken place, implicating the left thalamus opticus and left internal capsule. The retinal changes, the marked cardiac hypertrophy, the slight amount of albumen, the low s. g. of the urine, and the small amount of œdema and absence of ascites made us look upon the case as one of granular kidney, or chronic interstitial nephritis, which view was also strongly supported by the etiological element in the case (the patient was a plumber by trade) and the history of an attack of gout. The dimness of vision which the patient complained of previous to his apoplectic attack was no doubt due to the albuminuric retinitis. The hemiplegia, hemianæsthesia and hemianopsia were best accounted for by assuming one apoplectic focus situated in the above-given locality. The primary renal disease, the sudden onset, the absence of headaches, vomiting, &c., all pointed in favour of hæmorrhage rather than a tumour.

Progress.—The patient's condition remained unaltered for some time. Experiments were tried with an electro-magnet, but without causing diminution of the anæsthesia; a solenoid was also applied around the left lower extremity for some hours daily, with no better results.

On July 1st, 1881, the patient developed an attack of gout in the left great toe; and there was also diagnosed slight pleuritic effusion on the left side. Some of the fluid was withdrawn from the pleura by a subcutaneous injection syringe, and when treated after Garrod's method to show crystals of uric acid, gave positive results.

During the next few months the patient's condition underwent but little change.

The hemiplegia slightly improved, especially as regards the leg; the patellar reflex, which was noticed as absent before, became slightly marked on the left side, but not on the right. There was no tendency to contraction.

The anæsthesia remained unaltered.

The hemianopsia also remained unchanged.

The optic neuritis and retinitis gradually underwent the degenerative changes, and numerous white patches were visible, whilst the swelling of the disc receded.

The albuminuria remained the same; occasionally the urine contained a small amount of blood.

The œdema of the legs and eyelids disappeared, the gouty toe assumed its natural appearance, and the pleuritic effusion diminished somewhat, though not entirely. In this condition the patient was sent, on September 10th, to Cheadle, where he remained in very much the same condition up to November 4th, when he had another attack of cerebral hæmorrhage, became comatose, and died the same day.

A *post-mortem* was made by Mr. A. H. Young, pathologist to the infirmary, on November 5th.

On opening the skull it was seen that the left cerebral hemisphere felt firmer than the right, but was not otherwise altered. The brain was removed, and on section the interior of the right hemisphere was found to be the seat of a very extensive hæmorrhage, which had considerably damaged and ploughed up the basal ganglia and distended the ventricle, but left the cortex perfectly intact. It was impossible, even after hardening of the brain, to make out the seat of the original lesion; the optic tract and the geniculate bodies, however, were found to be perfectly healthy and quite away from the hæmorrhage. The medulla and cord were taken out and examined microscopically, after having been sufficiently hardened, and no changes whatever were found; there was neither descending degeneration of the lateral columns nor any changes in the posterior columns, either in the dorsal or lumbar region.

The heart showed marked hypertrophy of the left ventricle; the kidneys were small, red and granular, and showed changes affecting chiefly the capsules of the glomerule and the interstitial tissue. (The kidney changes in this case, and in some other cases of Bright's disease from chronic lead poisoning, have some important bearings on the pathology of Bright's disease, and will be the subject of a separate publication elsewhere.)

Remarks.—While the above reported case, owing to the

very extensive second attack of hæmorrhage to which the patient succumbed, does not allow us to exactly localise the exact situation of the lesion which produced the hemianopsia, it yet forms another valuable support for the theory of the semi-decussation of the optic nerves in the optic tract. It shows further that the hemianopsia was not due to pressure or disease on the tract or the corp. genicul., for these parts were found perfectly normal and quite away from the seat of hæmorrhage.

Another interesting feature in the case is the absence of tendon reflexes on both sides (on the left they were slightly marked during the last few months of life) and the absence of any tendency to contracture in the paralysed limb. The spinal cord showed absence of any descending changes. But no changes similar to those described by Westphal (in one case of general paralysis of the insane with absence of tendon reflexes) and situated in the inner side of the post. horn could be made out in this case.