Clinical Cases.

CASE OF CEREBRAL TUMOUR.

BY JOHN HADDON, M.D.

JOHN H., aged 38 years, a warehouseman, was seen in March 1876.

Previous history.—Has always been a strong, healthy man until the present history began.

In September 1874 he noticed a swelling on the top of his head, which continued to increase in size until March 1875, and has not grown any larger since. His health was in no way affected by the swelling, so far as he knew.

In August 1875 he had an attack of severe vomiting, and was attended by a surgeon, who said it proceeded from inflammation of the stomach. During this attack he for the first time felt a slight tingling down the left leg; but it passed off, and he thought himself quite well again.

In October 1875 the left leg began to feel weak and numb, and at the beginning of 1876, when he had to use a stick in walking, he sought medical advice.

In February 1876 the left arm began to feel weak, and in March he became quite unable to walk alone.

When seen in March, he had a tumour situated just behind the coronal suture, to the right of the middle line, whose base covered an area about the size of half-a-crown; and the hypodermic needle, passed through its most prominent point, came in contact with the skull, when it had reached three-quarters of an inch from the surface. At the base of this tumour, and to its left side, a smaller tumour about the size of a horse-bean was detected. There was no pain about the tumour, and it was solid and nodulated.

He could not walk without help, and when walking the left leg was swung from the hip by a movement of the

trunk. When the foot came to the ground, he could support his weight on it, so as to walk. As he sits he cannot move the thigh, leg, foot, or toes, but he can resist my bending the foot, and then the whole leg gets into a tremor. The left arm is numb and weak, but he can move it well enough.

Sensibility is unimpaired. The muscles are soft and flabby. He has occasional twitchings in the left leg, and suffers from pain round the body about the lower ribs, which often keeps him awake in the night. The right side is normal. The optic discs could not be distinguished from the rest of the fundus. His appetite is good, the bowels regular, and urine normal. He has no cough, or difficulty in breathing. His pulse occasionally intermits, and at times there is a systolic bruit at the cardiac apex.

In the beginning of April the movement of the left arm was awkward, the fingers remained straight, and looked useless.

On April 19th he could not move the left arm.

On April 21st a tumour of the cæcum began to obstruct the bowels.

May 5th.—The right leg is now weak. He complains of pain on the top of the head and in the left leg.

May 10th.—The right pupil is less than the left. He thinks he sees some one in the room, and his wife says he has strange fancies.

May 17th.—Left arm is rigidly contracted in semiflexion. The right hand shakes when he tries to use it, and the right leg is also partially paralysed. He complains of pain in the head.

May 19th.—Lies quiet with his eyes closed, and takes no notice. He cannot elevate the eyelids fully when he tries. He passes urine in bed. The left arm and leg are flaccid again. The voice is very feeble. He sweats profusely, and the pulse is 130.

On May 22nd he died quietly.

P.M.—The scalp being removed, the tumour was seen of a conical form, with a small one on its left side. On attempting to remove the calvarium, it was found adherent under the tumour. Force being used, the skull cap came away, with the tumour on its upper surface, and on its inner surface a thin and excavated part was seen, into which a tumour, now adherent to the dura mater, had fitted.

The thinning of the skull began half an inch behind the coronal suture on the right of the middle line, and was as large as a crown-piece in extent. The skull at that part was quite translucent, and the surface of the internal tumour had a rough spicular appearance.

Report as to the position and relations of the Tumour on the Brain, by PROFESSOR WATSON, of Owens College, Manchester.

The tumour arose from the dura mater covering the upper surface of the right cerebral hemisphere. It presented a cauliflower-like mass of an almost circular form, measuring two inches in diameter, and projected to a slight extent above the level of the cranial surface of the dura mater. It was situated immediately to the right of the middle line, and its deeper aspect was in contact with the right side of the falx cerebri; but a small

FIG. 1.

part of it extended to the left side of the middle line, so as to rest upon the vertex of the cerebral hemisphere of the left side. On separating the dura mater from the surface of the brain, along with the attached tumour, the latter, which was of a very irregularly nodulated form, measuring three inches in diameter in all directions, was seen to protrude itself into the substance of the right cerebral hemisphere, extending as far as the floor of the lateral ventricle of the same side. In its growth downwards it appeared to have carried in front of it the cerebral pia mater, which could be stripped off the surface of the tumour without difficulty. The tumour itself on the surface of the brain corresponded to, and had obliterated in the course of its growth, a portion of cerebral substance

extending from the ascending limb of the Sylvian fissure in front, to within an inch of the external parieto-occipital fissure posteriorly. (See figs. 1 and 2.)

From within outwards it had implicated and destroyed the surface of the hemisphere, from the great longitudinal fissure on the inner side, to a line prolonged backwards from the sulcus which separates the upper from the middle tier of frontal convolutions, on the outer side. Consequently, on the *outer* surface of the hemisphere the following convolutions were destroyed by the tumour:—

- (a) Upper half of ascending frontal.
- (b) Upper half of the ascending parietal.
- (c) Anterior half of the postero-parietal lobule.

FIG. 2.

On the *inner* surface of the right cerebral hemisphere the following convolutions were involved by the tumour:—

- (a) The marginal convolution, which was completely destroyed for a distance of two inches in front of its posterior extremity.
- (b) The anterior half of the quadrilateral lobule.
- (c) The upper portion of a corresponding extent of the gyrus fornicatus.

Both of these were completely destroyed to the extent indicated.

With regard to the depth to which the tumour extended into the hemisphere, I have stated that it reached as far as the floor of the lateral ventricle of the right side, projecting even into the descending cornu of the lateral ventricle. In the course of its growth it had completely destroyed—

- (a) The fibres of the corpus callosum, except about an inch anteriorly of that structure.

- (b) The intra-ventricular portion of the corpus striatum.
(c) The upper surface of the optic thalamus. In short, all that portion of the hemisphere intervening between the surface and the floor of the lateral ventricle was completely disorganized.

With regard to the portion of the tumour which rested on the left hemisphere, it may be mentioned that it compressed and dimpled the upper extremity of the left ascending frontal convolution, but it was not in any way disorganized by the tumour.

REMARKS.—The tumour would appear to have begun on the outer surface of the cranium, probably in the periosteum, whence it grew upwards for a period of six months, during which time there is no account of any symptoms. We have no history of any mischief until five months after it ceased growing upwards. During the five months it is probable that it was making its way through the bone. Having reached the dura mater, its growth would be more rapid; and it is probable that it was in August 1875 that the first pressure upon the brain occurred, and the point upon which pressure would first be felt must have been on the right of the middle line, and probably about an inch and a quarter behind the coronal suture. The first effect of the pressure was an attack of sickness, with tingling down the left leg.

The effect of the first pressure having passed off, he had no fresh symptoms for about six weeks. Paralysis then showed itself in the leg, and in the leg alone; and so well was he in every other respect, that the practitioner whom he consulted told him it was quite a local affection and would pass off. The leg gradually got weaker, and for five months it alone was affected. At the end of this period the left arm began to undergo the same process, but not until the paralysis of the leg was complete. In about two months after the first feeling of weakness in the arm it was completely paralysed. In another fortnight the right leg began to be affected, probably from the growth of the tumour across the middle line, upon the left hemisphere. A few days afterwards his reasoning powers became affected. In a few days more, rigidity of the paralysed left limb occurred, and continued for two days. Ptosis, probably paralysis of the sphincter of the bladder, and profuse perspiration were the only other symptoms before death, which was caused by a tumour in the cæcum.

It would appear, then, that the cerebral substance pressed

upon by the descending tumour was in the region occupied by the upper parts of the ascending frontal and ascending parietal convolutions, and the anterior half of the postero-parietal lobule; and further it is highly probable that these parts were pressed upon in the order in which they are mentioned.

We appear, therefore, to be justified in concluding, that pressure upon the upper part of the above-named convolutions of the right side in this case caused paralysis of the opposite leg, and that the centre for the leg is situated in this region, as indicated by Ferrier's researches.