ENDOTHELIOMA OF THE PITUITARY GLAND WITH INFANTILISM.

BY

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THE following case, which was under my care in the Royal Prince Alfred Hospital, Sydney, on two occasions, is of special interest in view of the present divergence of opinion upon the true functions of the pituitary gland.

A boy, 16 years of age, a telegraph messenger, was admitted to hospital in 1907, with a history of headache for some considerable time, accompanied by a feeling of drowsiness and disinclination for any kind of food, with some wasting. His height was 4 ft. 8 in., and weight 4 st. 5½ lb.

History.

The family history was good. All the other members of the family are healthy, and there is no tuberculosis. He had measles six years ago and influenza three years ago.

His present trouble is a continuation of a state he has been in for some years. As long as he can remember he has been subject to headaches, chiefly in the frontal regions, but it is only during the last six months that the drowsiness and anorexia have come on. He has had frequent attacks of vomiting which have always been preceded by a feeling of nausea. He has always been very thin, but has lost weight during the last six months, and he is somewhat anaemic.

Condition in 1907.

Although he is 16 years of age he is undeveloped, skin smooth and delicate, the limbs small, no hair on face, in the axillae or on the pubes; the genital organs are infantile in type, and his voice is effeminate.

He complains of frequent headaches, his intelligence is excellent, memory good, no affection of speech; his eyesight is good, the pupils are equal and react normally to light and convergence, the ocular movements are good, but there is a history of occasional diplopia. The visual fields are normal, there is no optic neuritis, or retinitis, there is no deafness, or tinnitus, and no giddiness. He is always sleepy; there is no paralysis, but all the muscles are weak, the right hand grasp being rather weaker than the left, and the movements of the right leg somewhat weaker than those of the left. There is no disturbance of sensation of any kind. The deep reflexes are brisk, equal on both sides, and no Babinski. The abdominal and cremasteric reflexes are active on both sides.

The heart and lungs are clear, but the aortic second sound is somewhat accentuated. The pulse varies from 80 to 96, rather high tension; the arteries are slightly rigid. He has no appetite—in fact, it is difficult to get him to take food. The abdomen is rather retracted, but there is nothing abnormal to be made out on examination. The bowels generally act normally. There is some frequency of micturition, the urine is very pale, specific gravity 1007 to 1012, faintly acid, contains no albumen or sugar.

He remained in hospital for six weeks.

It will be seen from these notes that the diagnosis was extremely difficult, and the only points to guide one were the high arterial tension, the large amount of pale urine of low specific gravity, the headache and vomiting. In the absence of optic neuritis and any localizing symptoms of brain tumour, we were driven to the diagnosis of chronic interstitial nephritis. He was discharged from hospital

slightly improved in general health. He remained in fair general health till re-admission to hospital in August, 1909.

Condition in 1909.

He had not apparently grown in height or development since being in hospital on the last occasion, but he was now about 2 lb. heavier.

He complained still of headache and occasional vomiting of cerebral type. His memory was defective, and had been getting worse for the last year. He was quite intelligent, but could not fix his attention. Headache was constant day and night; it disturbed his sleep, and was made worse when he tried to read. Everything seemed a trouble to him. The pupils were small

and equal; they reacted to light and convergence and the ocular movements were normal. Examination of the media showed a post-neuritic atrophy in both discs, and investigation of the fields of vision revealed a very definite bitemporal hemianopsia. His vision was $\frac{5}{6}$ in each eye. There was no other cranial nerve affection. His muscular power was feeble, as all his muscles were but poorly developed; he could not walk except with assistance as he tended to fall backwards. There was no disturbance of sensation. His knee-jerks were increased, more so on the right side than the left; there was no ankle clonus and the plantar reflex was flexor in type.

There was now no excess of urine; it was alkaline, sp. gr. 1020, and contained no albumen and no sugar. His temperature on admission was subnormal, pulse 90, and respiration normal.

Six days later he had two or three fits, in which he became completely unconscious, breathing stertorously, and sweating profusely. The limbs became rigid, the reflexes were exaggerated, and a Babinski reflex was present on both sides, but was easily exhausted. He had incontinence of urine during the fits. The temperature

Fig. 1.—Brain with tumour *in situ*.

rose to 103° , and remained high for some days, varying from 99.8° to 105° . Lumbar puncture furnished some cerebro-spinal fluid which did not escape under pressure, and microscopic examination showed only a few lymphocytes, but no organisms; the fluid was sterile on culture. There was marked prostration, with dry brown tongue, sordes on the lips, and general hebetude. From this state he gradually recovered, but there was a definite weakness on the right side, and on his discharge from the hospital there was ankle clonus on the right side and double Babinski reflex.

He died in his own home a few months later, but he was seen at intervals from the time of his discharge from the hospital up to the time of his death, and no material change took place in his condition.

On this occasion there was no doubt that he had a lesion of the pituitary gland, but the nature of that lesion was obscure. It was quite clear that this gland was enlarged, because there was pressure on the optic chiasma, the post-neuritic optic atrophy and the bitemporal hemianopsia showing this.

As the patient died outside the hospital, it was only possible to make a partial post-mortem examination. The brain was obtained and the photographs show that the pituitary gland was replaced by a large neoplasm, the size of a large walnut. Histological examination by Professor Welsh, of Sydney University, showed that the growth was an endothelioma, which had invaded the gland, and only very little of the glandular tissue remained. It was not possible from examination of the tissue to say which lobe of the pituitary gland had been first invaded.

Reviewing the clinical history in the light of the post-mortem evidence, we can understand the symptoms he

Fig. 3.—Tumour of the pituitary.

presented on his first admission to the hospital. For there can be little doubt that the headache and vomiting were due to the growth in its early stage, and the high arterial tension with increased flow of urine were the result of a hypersecretion of the pituitary gland (anterior lobe). In this connexion it is interesting to note that Harvey Cushing has recorded two cases of tumours compressing the pituitary gland, in both of which the symptoms were mainly urinary, and the diagnosis of chronic interstitial nephritis was made at first. So in making an erroneous diagnosis in the first instance I was in good company.

While it is well known now that cases of acromegaly have occurred in which no macroscopic lesion of the pituitary gland has been observed, and conversely tumours of the pituitary gland have been observed with absence of the clinical symptoms of acromegaly, so far as I have been able to observe from the literature, no case has been recorded of a large neoplasm involving and completely replacing the pituitary gland in association with a definite infantilism *without adiposity*. (Compare Frohlich's syndrome.) We are left in doubt as to whether the infantilism was really due to the destruction of the pituitary gland and the failure of its internal secretion. There is no doubt that there is a close connexion between the activity of the pituitary gland and the sexual organs. For in acromegaly in men we have complete loss of sexual power, and in women amenorrhoea is a well recognized symptom. There is also good reason to believe that the changes in the body which are associated with the

development of puberty in both sexes are due to the activity of the internal secretion of the sexual glands. But if we are to assume that acromegaly is the result of hyperpituitarism, then we must believe that the overactivity of the pituitary decreases the activity of the sexual organs; and if the internal secretion of the latter is suppressed we should get theoretically a failure of the development of the specific body features of puberty. If hyperpituitarism leads to excessive growth of the bony skeleton, then, in view of the symptoms of hyperpituitarism manifested by this boy on his first admission to the hospital, he should have

shown rapid growth rather than delayed growth and infantilism. However, our present knowledge does not enable us to dogmatize on these questions. My only object in reporting this case is to furnish further evidence on which future studies of the physiology and pathology of the pituitary gland may be based.

THE annual report of the National Society for the Prevention of Cruelty to Children shows that last year the inquiries made by its inspectors numbered 54,118, and in 52,371 instances the reports leading to the inquiries proved to be true. In the majority of cases the society contented itself with warning the persons concerned, but in 2,355 instances it thought it right to institute prosecutions, and only 61 of the cases were dismissed by the courts. The commonest offence was neglect. The total number of children concerned in the reports which inquiry proved to be well founded was over 156,000. The society now has a bureau at which an immense amount of information relating to children has been indexed on the card system, and this it places at the disposal of those desirous of studying the subject or of speaking thereon. The headquarters of the society are at 39, Leicester Square, and its telegraphic address is "Childhood, London."

Fig. 2.—Brain after removal of tumour.