Short Notes and Clinical Cases.

CASE OF MESENCEPHALIC TUMOUR WITH DOUBLE ARGYLL ROBERTSON PUPIL.

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IN a recent study¹ by one of us devoted to consideration of the Argyll Robertson phenomenon in all its aspects, special reference was made to its occurrence, among other non-syphilitic conditions, in cases of mesencephalic tumour, and several personal observations were cited to prove that this association is not only definite if comparatively rare, but also of great localizing significance. We are able, in this brief communication from the Neurological Clinic at King's College Hospital, to record another example of precisely the same association, viz., a case of cerebral tumour involving the anterior colliculi, and manifesting itself by the combination of paralysis of upward and downward ocular movements with a typical double Argyll Robertson pupil. The case has been followed to autopsy, and the localizing diagnosis made during life has been amply confirmed by the pathological finding.

We wish here to express our obligation to Dr. Raymond Crawford, Director of Medical Studies at King's College Hospital, for his kindness in handing the case over to the Neurological Department.

Clinical History.—J. E., metal worker, age 23, was admitted to hospital on Jan. 26, 1922, complaining of headache and double vision.

The symptoms began with diplopia, in May 1921, but headache did not develop till November, when giddiness and occasional vomiting, independently of food, also set in. On admission, the patient was seen to be somewhat drowsy and listless, with a slow reaction-time; but his mentality was normal, and there was no evidence of implication of the cerebral hemispheres in the disease-process.

Cranial Nerves.—Well-marked double papilloedema was present, completely obscuring the disc edges, with over 2D of swelling. The visual fields were normal, and the acuity of vision was little if at all impaired. The diplopia persisted, the images being sometimes one slightly above the other, sometimes on the same horizontal level.

Conjugate lateral movement to the right was normal (*Fig. 1*); to the left it was rather less good, and coupled with a tendency to nystagmoid jerking. Conjugate upward movement was very poor (*Fig. 2*), and downward movement even more so (*Fig. 3*), being, in fact, practically nil. Convergence was good and well sustained. The pupils, about $2\frac{1}{2}$ mm. in diameter, were central, circular, very slightly unequal ($R > L$), and reacted well with convergence and on accommodation, yet

FIG. 1.—Normal lateral conjugate movement.

both were completely inactive to bright light. In the other cranial nerves no abnormality was discovered.

The Motor and Sensory Systems were intact, with the exception of

FIG. 3.—Complete paralysis of conjugate downward movement. Eyes again move slightly to the right in the attempt.

FIG. 2.—Almost complete paralysis of conjugate upward movement. Eyes swing very slightly to the right in the attempt to look up.

the slightest weakness of the left face, and cerebellar symptoms and signs were absent, though there was a tendency to fall backward when the patient was in the erect position.

The Reflexes (arm and leg) were not brisk, the left abdominal was possibly diminished, and the left plantar a less good flexor than the right.

On Feb. 1 the Wassermann test in the blood was negative, and on April 12 it was negative in the cerebrospinal fluid.

The patient was re-examined at frequent intervals up to the date of his death, May 1, and the following are the chief developments of the case during the three months.

The double Argyll Robertson pupil persisted, and was repeatedly confirmed, till towards the end of April, when the patient's ever-increasing drowsiness, or possibly actual paresis, made testing for convergence-accommodation impracticable. It was noted, however, that in the effort to converge a tendency for the eyes to swing slightly to the right, in conjugate movement, manifested itself. Paralysis of both upward and downward conjugate movement became absolutely complete, and for some weeks before the termination of the case conjugate movement to the left became less good than before. By April 23 this was more definitely impaired, and was associated with frequent nystagmoid jerking in attempts to look to the left. A degree of ectopia pupillæ was observed about this time in both eyes, the pupil being deviated upwards and inwards, but not to a notable extent. The optic neuritis had become intense, and began to pass into a secondary atrophy, coupled with failing visual acuity. Towards the end of March the deep reflexes became steadily weaker, and at the beginning of April a double extensor response was obtained, which persisted at all later examinations. The patient became ever more apathetic and drowsy, kept his mouth open, stared in front of him, lost apparently all power of articulating though attempts were made, and had difficulty in swallowing. Automatic chewing movements were occasionally observed to persist for some seconds after he had swallowed what was put into his mouth. Respiratory embarrassment and eventual failure led to the fatal issue on May 1, as stated above.

Post-mortem.—Examination of the brain, after hardening in formalin for ten days, was made by a complete vertical antero-posterior section through corpus callosum, mesencephalon, pons, and medulla, when the condition seen in *Fig. 4* was at once revealed.

A tumour was found occupying the dorsal part of the mesencephalon in its anterior segment, extending roughly in a spherical fashion from about the position of the pineal gland. It had invaded the overhanging splenium of the corpus callosum and probably had started its growth in the third ventricle, the cavity of which was dilated and its floor stretched. The ventricular aspects of both optic thalami, and the regio subthalamica, were to some extent also involved. Most significant of all, the tumour had invaded and destroyed the anterior colliculi, as is very clearly shown in *Fig. 4*, whereas the posterior part of the tectum and of the iter were intact. The ventral part of the mesencephalon was not invaded, while pons, cerebellum, and medulla were similarly normal.

Microscopical examination of sections of the tumour showed it to belong to the rare group of carcinoma-like growths, apparently derived from the choroid plexus.

To summarize the salient features of the case: A young man develops the cardinal general symptoms of intracranial tumour, viz., headache, giddiness, vomiting, and optic neuritis. The localizing signs are, mainly, paralysis of upward and downward conjugate ocular movement, with conservation of lateral movement. This points unmistakably to invasion of the region of the anterior colliculi in the mesencephalon, and with it is coupled an entirely typical and readily demonstrable double Argyll Robertson phenomenon. Wassermann tests in blood and cerebrospinal fluid are throughout negative. At the autopsy a roughly spherical tumour is found in the dorsum of the mesencephalon, invading and destroying the anterior colliculi.

This case, thus described very briefly, furnishes ample corroboration both of the contention, for which there is much clinico-anatomical evidence, that one of the chief sites of lesion underlying the Argyll Robertson phenomenon is the region of the anterior colliculi, and of the now generally recognized truth that that sign cannot be taken in any way as an infallible proof of preceding syphilis. The case is to be ranged with those already published by one of us, and previously by Moeli, Farquhar Buzzard, and others, demonstrating these facts, which are deserving of the fullest recognition. The combination of paralysis of vertical eye movements with the Argyll Robertson pupil, not being due to obvious peripheral lesions, is of much localizing importance.

FIG. 4.—Macroscopic view of tumour occupying the posterior part of the third ventricle and destroying, *inter alia*, the anterior colliculi.

REFERENCE.

- ¹ WILSON, KINNIER, "Some Problems in Neurology: No. 1, the Argyll Robertson Pupil", *Jour. Neurol. and Psychopathol.*, 1921-22, ii, 1. (This paper contains a full bibliography.)