IMPACTED CYST IN THIRD VENTRICLE OF BRAIN.

REPORT OF TWO CASES.

BY

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(With Special Plate.)

DURING a period of ten years two most unusual cases of cyst of the choroid plexus in the third ventricle have come to necropsy. Both patients died rapidly and formed the subjects of coroners' inquests, so that it seemed desirable to place the cases on record.

In searching the literature at my disposal I have been able to find but few records of similar cases. It is true that the pathological condition of cyst of the choroid plexus is referred to in pathological textbooks, but it is usually dismissed as being of little practical importance. J. H. Douth¹ described a case of "villous tumour" of the fourth ventricle which appeared to have the structure of the choroid plexus and which blocked the fourth ventricle. It occurred in a lad of 17 years, who had a history of reeling gait and gradually increasing weakness for months. The late Sir Frederick Mott with J. O. Wakelin Barratt,² in recording three cases of tumour of the third ventricle, found one of these to be a cyst which filled the third ventricle and had the structure of choroid plexus with a gelatinous content. The patient was a man, aged 34, who had attacks of severe headache, double vision, ptosis, and stupor. The condition persisted for about seven months, and he finally became comatose and died. Buzzard³ and Greenfield,³ in their book (p. 259), illustrate "a colloid tumour of the third ventricle, possibly derived from the pituitary." The gross appearance of this is very similar to Case ii, described below.

CASE I.

The patient was an unmarried girl, aged 19. She had a history of headaches at intervals and attacks of faintness, the first said to have been about two years previously. On November 15th, 1919, she complained of pain in the head. During the night her parents applied cold cloths to relieve the headache. About 6 a.m. on November 16th she became worse and finally unconscious. A doctor was called, but on arrival he found the patient dead. The coroner ordered a post-mortem examination and held an inquest.

Post-mortem Examination.—The body was that of a well-developed and well-nourished young woman. There was pronounced post-mortem lividity in dependent parts and in the neck. On reflecting the scalp there were small pin-point haemorrhages in the scalp tissue over the right frontal region and in the occipital region. The brain showed flattening of the convolutions on both sides; there was no meningitis, and no adhesions were present. There was slight engorgement of the surface vessels and excess of clear cerebro-spinal fluid at the base. On section the brain tissue was very oedematous, with moderate engorgement of the vessels in both white and grey matter. The lateral ventricles were slightly dilated and filled with clear cerebro-spinal fluid. Lying in and completely blocking the third ventricle was a clear-walled cyst, the size of a large pea, attached to the choroid plexus at the anterior end of the third ventricle. The cyst could be dislodged, and was then freely movable except at its attachment to the choroid. In the choroid plexus of the right lateral ventricle was a similar but much smaller cyst. The spinal cord was oedematous. There was nothing of special note in the other organs, except an old encapsulated caseous nodule, 2 cm. in diameter, in the lower part of the upper lobe of the right lung.

Summary.—Cyst of choroid plexus blocking the third ventricle; acute hydrocephalus; acute cerebral oedema.

Microscopical Examination (see Fig. 3).—Portions of the choroid plexus and of the cyst wall were cut. The choroid plexus has the usual structure—namely, a scanty and loose areolar tissue in which are many small vessels and capillaries; covering the plications of the plexus are the ependymal cells. The wall proper of the cyst consists of a thin layer of connective tissue on which is a layer of clear cells, cubical to flat, similar to the ependymal cells of the choroid plexus adjacent. The content of the cyst has a homogeneous

hyaline structure; in parts are a few scattered cells, some polymorph leucocytes, some mononuclear in type and difficult to identify.

CASE II.

The patient was a young man, aged 23, unmarried, a porter in a hotel. No history was obtainable of fits or illnesses of any kind, except a "strain" about a year previously; judging by the operation scar seen at necropsy this seems to have been an inguinal hernia which had been cured by operation. The family history was not good; his mother was said to have been a prostitute, one brother was in an asylum with general paralysis of the insane, and another brother was known to be addicted to drink.

On June 24th, 1928, the patient, who had been out, returned about 11 p.m. apparently in good health, and retired to bed. At 6.30 the following morning he was found by one of the hotel servants lying on his bed—which he had put on the floor—groaning and barely conscious. He had been sick out of the window and on the floor, and his bowels had moved. He was put back in his bed, and when visited about a quarter of an hour later was found to be dead. The police were informed, and the coroner ordered a post-mortem examination and later held an inquest.

Post-mortem Examination.—The body was that of a well-developed, strongly built young man. Rigor mortis was general throughout the body. There was the usual post-mortem lividity in dependent parts of the body. There was a slight bruise at the root of the nose towards the left side, and two small and quite superficial abrasions on the left side of the forehead. There were no other marks of injury, except a partially healed cut on the left hand and an old operation wound in the right groin. All the teeth of the upper jaw were absent, but no dental plate was present in the mouth, or elsewhere in the body. There was no obstruction in the upper air passages; the trachea contained scanty, frothy mucus; the oesophagus was empty. The thoracic and abdominal organs were healthy. The stomach was contracted, its mucous coat was covered with mucus and a few food remnants and was slightly congested.

Head: The skull cap was normal. **Brain:** The dura stripped readily and appeared healthy. There was slight excess of cerebro-spinal fluid around the base. The cerebral arteries appeared healthy. The surface convolutions were flattened. On section the brain substance was markedly oedematous and the lateral ventricles were moderately dilated and filled with clear cerebro-spinal fluid. In the mid-line was a round, clear-walled cyst firmly plugging the third ventricle; it was attached to the adjacent part of the choroid plexus of the ventricle. The illustration (Fig. 1) shows the appearance of the brain when cut horizontally through the plane of the cyst.

Microscopical Examination (see Fig. 2).—The appearances are the same as already described in the first case. The illustration shows a portion of the cyst wall, part of the homogeneous content, and some of the lining cells cut tangentially. Many of these cells are distended with granular content, staining pale lilac in the haematein-eosin section; the cyst content at its margin shows similar globules of granular material, as if composed of cells whose nuclei had disappeared. The amorphous content of the cyst stained blue with Leishman's stain and with toluidine-blue.

Summary.—Death in coma caused by a cyst of the choroid plexus of the third ventricle suddenly blocking that ventricle and causing an acute hydrocephalus and acute cerebral oedema.

The Wassermann and hydatid complement fixation tests were negative.

Commentary.

These two cases are interesting from both the pathological and the medico-legal point of view. Such cysts of the choroid plexuses are not unusual in the lateral ventricles, but apparently rare in the third ventricle. In both these cases it would appear as if the cysts had occurred at or near the apex of the third ventricle and had been freely movable; owing to this they had become impacted, with resulting oedema leading to firmer impaction and complete blockage of the ventricle; this in turn led to the acute hydrocephalus. The appearance of the content of the cysts suggests that it was formed partly by the activity of the lining cells and partly by serous transudation. The origin of the cysts is from the choroid plexus, judging by the microscopical structure; the exact mode of formation cannot be stated from the data available. The few inflammatory cells seen in the content are probably of terminal origin only, and there was no evidence found of previous inflammatory change.

REFERENCES.

- 1 J. Harrington Douth: *Brain*, vol. viii (1886), p. 409.
- 2 F. W. Mott and J. O. Wakelin Barratt: *Archives of Neurology*, 1900, p. 417.
- 3 E. Farquhar Buzzard and J. Godwin Greenfield: *Pathology of the Nervous System*. London, Constable, 1921.

FIG. 1.—Horizontal section of brain of Case ii. The third ventricle is occupied by a rounded cyst, filled with colloid material; the lateral ventricles are moderately dilated. The transverse groove is a cut made into the brain at necropsy.

FIG. 2.—Low power view ($\times 50$) of part of cyst wall of Case ii, to show colloid content with a few cells in it, a layer of lining cells cut tangentially, and part of the thin wall with lining of flattened cells.

FIG. 3.—Low power view ($\times 50$) of part of cyst wall of Case i. The homogeneous colloid content is seen bounded by the thin wall of the cyst. A folding back of the wall is seen with part of it cut tangentially.

B. PICKERING PICK: MENINGOCELE.

Note absence of greater part of sacrum and the whole of the coccyx. The cyst occupied the resulting space.

C. R. NUNAN: RENAL ABNORMALITY.

FIG. 1.—A, Left kidney. B, Right kidney. C, Suprarenal gland. D, Enlarged lymphatic gland found near the kidneys.

FIG. 2.—Right kidney cut open, with a glass rod passed through the ureter and the pelvis.