There appears to be no group of findings suggestive of a diagnostic syndrome specific for arachnoid cysts of the posterior fossa. Numerous features, however, segregate these lesions from inflammatory arachnoiditis in the posterior fossa, and they are felt to constitute a distinct, pathological entity.

Appreciation is expressed to Charles Bridgman, Timothy Dodge and Thomas Masterson for their help in preparing the illustrations.

REFERENCES

COLOID CYST OF THE FOURTH VENTRICLE
REPORT OF A CASE OF TWO COLOID CYSTS OF THE FOURTH VENTRICLE

Dwight Parkinson, M.D.,* and A. E. Childe, M.D.†

Winnipeg, Manitoba

(Received for publication February 11, 1952)

The term, “colloid cyst,” to the neurosurgeon invariably connotes the single cystic mass occurring always at the anterior portion of the 3rd ventricle adjacent to the foramen of Monro. The predilection of these cysts for this location and their absence from other portions of the ventricular system have been explained on the basis that they arise from the embryonic paraphysis.1,5,7,12,15 The paraphysis is an epithelial outpouching with numerous tubules from the telencephalic part of the roof of the 3rd ventricle just in front of the velum transversum. This structure is reportedly common to all vertebrates but not found beyond the 32 mm. stage in human embryos.1

These colloid cysts are commonly referred to as “paraphysial cysts,” although Dandy, who did most to bring them to medical attention, preferred the descriptive term, “colloid cyst,” without reference to their possible origin.

Various reasons have been offered for believing that these cysts arise from the paraphysis—the presence of numerous rudimentary tubules in the cyst wall,12 the presence of ciliated epithelium and the location of the cysts.

Not all reported cases have been similar nor have they necessarily all evidenced the above criteria. The lining has varied from fairly flat epithelium9 to single-layered cuboidal10,14 to columnar ciliated13,4,8 epithelium. Perhaps some of these

* 428 Medical Arts Bldg., Winnipeg, Manitoba.
† 101 Medical Arts Bldg., Winnipeg, Manitoba.
are not true paraphysial cysts but more likely the amount of distention in each case alters the architecture of the lining epithelium.

The amount of the cyst wall that has been adherent to and covered by the choroid plexus has varied considerably in different cases also.

One cyst was apparently in the posterior part of the 3rd ventricle.\(^4\)

The following case is unusual in two respects. There were two colloid cysts and they were both in the 4th ventricle. The authors are not aware of any previous cases of colloid cyst of the 4th ventricle.\(^5\)

**CASE REPORT**

M.L., a male aged 28, was considered well until the latter part of June 1951, 8 weeks before admission. At that time he noted a sensation as though ants were crawling over the skin of his left occiput. Within the next day or two he began to stagger and notice blurring of his vision. In the latter part of July, he began to vomit and he was admitted to another hospital where he was investigated for disturbance of the intestinal tract until the time of admission to the Winnipeg General Hospital, Aug. 24, 1951. Headache was never a complaint, but the formication persisted until his operation.

**Examination.** He was a well built but haggard-appearing young male, rather reluctant to be disturbed from his curled-up position in bed. He walked with an ataxic gait. There was a fine, rapid nystagmus on lateral deviation, most marked to the right. There were bilateral acutely choked discs.

On Aug. 28, 1951, under local anaesthesia, ventriculography was performed with recovery of 30 cc. of clear CSF. There was free communication between the two lateral ventricles. Subsequent roentgenograms revealed a moderate degree of symmetrical dilatation of both lateral ventricles and of the 3rd ventricle. In spite of adequate manipulation of the head, the aqueduct of Sylvius was visualized only in its proximal 5 mm. This portion of the aqueduct was dilated, measuring 3.5 mm. in diameter. A small quantity of oxygen had passed beyond this point and it partially filled a considerably enlarged 4th ventricle. The basal cisterns were not outlined. These findings were interpreted as indicating a lesion that was obstructing the exit of CSF from the 4th ventricle and that was also extending up into and partially obstructing the aqueduct (Figs. 1, 2, and 3).

**Operation.** A midline cerebellar craniotomy was performed the same morning. The tonsils both extended down to the inferior edge of the arch of the atlas. As the tonsils were separated there was seen protruding through the foramen of Magendie a smooth-walled, fluctuant, blue-gray mass resembling a nasal polyp in appearance and consistency. This was gently teased out and delivered; it had no apparent attachment although the cyst wall broke in the process, releasing a homogeneous clear gelatinous fluid. When reexpanded this cyst measured 1.5 cm. in diameter. On reexamining the foramen another similar but smaller projection was seen to have taken the place of the first. This was removed easily without rupture and measured about 1 cm. in diameter. There was no bleeding associated with the removal and there was no irregularity on the surface of either cyst that could have represented a point of attachment. There was a free gush of CSF after the second cyst was removed. However, feeling that if there were two there might be more, the vermis was split and the entire surface of the 4th ventricle inspected. There were no more cysts visible nor was there any evidence of a point of attachment, although the midline of the roof was of course traumatized in the exposure. The aqueduct allowed passage of a #8 French catheter into the 3rd ventricle. The wound was closed.

**Course.** The patient made an uneventful recovery. He was last seen on Dec. 6, 1951 at which time he had gained 25 lbs. and had been working as a laborer in the woods since his discharge from the hospital. He was completely free of his intracranial symptoms. His nystagmus and papilloedema had disappeared.
Fig. 1. Lateral ventriculogram showing dilatation of the lateral and 3rd ventricles and also of the proximal 5 mm. of the aqueduct of Sylvius (arrow).

Fig. 2. Brow down, lateral ventriculogram made following manipulation of the head. There is now shown to be some gas in the posterior part of the 4th ventricle, which is enlarged considerably posteriorly (arrow).

Fig. 3. P.A. ventriculogram showing dilated lateral and 3rd ventricles as well as the dilated 4th ventricle (arrows), which is situated in the mid-line.
COLLOID CYST OF THE FOURTH VENTRICLE

Microscopic Examination. The cyst wall was lined by columnar ciliated epithelium with an enveloping narrow layer of fibrous stroma (Figs. 4 and 5).

Fig. 4. Collapsed portion of cyst wall (X40) showing lining membrane in folds. In the upper left portion several small epithelial-lined tubules are visible at quite a distance from the lining of the main cavity. Some larger ones can be seen in the left mid-portion. (W.G.H. Path. #5672/51).

Fig. 5. High magnification (X1000) of inner surface of cyst wall showing the ciliated columnar epithelial lining and the underlying loose stroma.

DISCUSSION

There can be little doubt that grossly and microscopically these two cysts are identical with the typical colloid cyst of the 3rd ventricle. The question at hand is how did they get in the 4th ventricle. There are two possibilities: either they
originated there from the ependymal lining or they migrated through the aqueduct after having been detached from the 3rd ventricle. Neither one could have navigated the aqueduct in their present size. It is possible that they came through in a smaller size and then grew, nourished as free bodies in the fluid of the 4th ventricle. They were obviously being nourished sufficiently to prevent necrosis as apparent free bodies in the 4th ventricle, whether originating there or not. The ventriculogram is best explained by one cyst partially obstructing the distal aqueduct and the other obstructing the foramen of Magendie.

The possibility that these cysts originated in the 4th ventricle seems more likely to the authors. If they washed through the aqueduct in their infancy there should be nothing to prevent them washing on through the foramen of Magendie to lodge in the cisterna magna or beyond.

Just which portion of the 4th ventricle should be suspected of giving birth to the cysts can only be surmised. The argument that all colloid cysts are formed by the embryonic paralysis does not seem logical. The ciliated lining of these cysts does not necessarily mean that they can arise only from the paralysis. This structure and the remaining ependymal lining all have a common origin from the embryonic ectoderm. The cystic masses\(^1\) covered with epithelium that resembles choroid plexus, probably begin as papillomata whose supporting stromal core undergoes cystic degeneration. These may be related but are certainly not the same as the cysts in this report which are lined, not covered, with epithelium, which epithelium is embryonic in nature.

**SUMMARY**

A case of two colloid cysts of the 4th ventricle is presented, believed to be the first such report. The possibilities of origin are discussed.

**REFERENCES**

11. Levrat-Perrottet, F. Cited by Van Wagenen.\(^16\)
GLIOMATOSIS CEREBRI

N. MALAMUD, M.D., B. L. WISE, M.D., AND O. W. JONES, JR., M.D.

Laboratory of Neuropathology, The Langley Porter Clinic, and Division of Neurological Surgery,
University of California Hospital and Franklin Hospital, San Francisco, California

(Received for publication March 22, 1952)

In 1938, 3 cases were reported by Nevin® under the title of "Gliomatosis Cerebri." His first patient was a 23-year-old woman who had progressive symptoms of failing memory, emotional deterioration, petit mal seizures, papilledema, and headaches over a period of 10 months; she died shortly after a lumbar puncture and ventriculography. The second patient was a 27-year-old man who had convulsions, impairment of memory, and headaches of 2½ years’ duration; he died a year after a decompression operation. The third case concerned a 54-year-old woman with a history of lifelong convulsive seizures and pigmentation of the skin characteristic of von Recklinghausen’s disease, who in the last 4 years of her life showed progressive mental deterioration, and towards the end, a right hemiplegia, papilledema and stupor; she died shortly following hospitalization. In all 3 cases the autopsy disclosed macroscopically only slight enlargement and discoloration of various parts of the brain tissue, but microscopically there was a striking diffuse overgrowth of neuroglial cells in all stages of development throughout wide areas of the cerebral hemispheres with little or no tendency to local tumor growth. Nevin compared his cases with those reported previously under various designations by Hildebrandt, Landau, Cassirer and Lewy, Schwartz and Klauer, Foerster and Gagel, and von Sántha. To these may be added more recent reports by Scheinker and Evans. Because of the diagnostic difficulties presented by this condition and because of its theoretical interest, the following case is here reported.

REPORT OF CASE

History. A.S., a white male, aged 17 years, began to complain of persistent diplopia and occasional attacks of nausea and vomiting in the spring of 1948. He was first seen by a physician in June 1948, at which time a paralysis of the right medial rectus muscle was the only finding. He was treated with eye-muscle exercises. By September 8, 1948 his condition had progressed to an almost complete right external ophthalmoplegia. There was also a mild right exophthalmos and mydriasis with normal pupillary reactions. On December 14, he was found to have bilateral hemorrhagic papilledema of 3D and was therefore admitted to the hospital.

Examination revealed, in addition to the right-sided ocular signs and bilateral papilledema, a fine horizontal nystagmus on gaze to the left, mild left supranuclear facial paresis, and increased deep tendon reflexes on the left. Two days following admission, the patient had a generalized convulsive seizure. Laboratory studies were entirely negative. Ventriculogram revealed a questionable slight shift to the left without deformity, no air having entered...