CEREBELLAR AND CEREBRAL GLIOMAS OCCURRING IN THE SAME INDIVIDUAL

GILBERT B. SOLITARE, M.D.

Department of Pathology, Yale University School of Medicine, New Haven, Connecticut

(Received for publication June 14, 1962)

Numerous case reports and several reviews have been written concerning multiple, primary tumors of the brain. Much of this literature has pertained to meningial and pituitary tumors in conjunction with gliomas of various types. Multiple gliomas have been reported much less frequently and gliomas occurring within the cerebrum and cerebellum in the same individual are a rarity.

This report deals with the occurrence of a cystic astrocytoma in the cerebellum of a young female, and the later discovery of a cystic astrocytoma of the cerebrum in the same individual.

CASE REPORT

G.A. (G.N.H.C.H. #394), a 15 7/12-year-old white female, was first admitted to the New Haven Hospital in early March 1932 in transfer from the Bridgeport Hospital. In January 1932 bilateral papilledema was noted and a 2-year history of frequent frontal headaches associated occasionally with vomiting was obtained. During the 2 months prior to admission the patient experienced blurring of vision, dizzy spells, and dysphagia.

Examination. Positive neurological findings included bilateral papilledema, left facial weakness, unsteady gait, bilateral horizontal nystagmus, slightly decreased deep tendon reflexes in the lower extremities, and slightly increased deep tendon reflexes in the upper extremities. A tentative diagnosis of midline cerebellar tumor was made.

Operation. On March 10, 1932, following a ventriculogram which revealed uniformly dilated ventricles, a suboccipital craniotomy was carried out. A small cyst with a large tumor nodule was removed from the vermis of the cerebellum and a small fragment of tumor was believed to be present within the 4th ventricle.

Pathologic Report. The tumor grossly was granular and firm. Microscopic sections revealed vascular tissue with numerous large cyst-like spaces filled with a homogenous pink-staining fluid. Neoplastic cells resembling astrocytes with definite cellular processes were noted. Much of the interstitial tissue was acellular and filled with corkscrew glial processes forming a loose reticul meshwork. No mitoses were noted. Diagnosis was cerebellar astrocytoma (Figs. 1 and 2).

Course. Two weeks following operation the patient was noted to be drowsy and the suboccipital decompression was full.

2nd Operation. Re-exploration of the posterior fossa was carried out on March 22, 1932. No tumor was identified. A small nubbin of discolored tissue was removed from the inferior end of the vermis.

Pathologic Report. No neoplastic tissue was found microscopically; there was an abundance of gitter cells and a diffuse leukocytic infiltration in the surrounding cerebellar tissue with marked regressive changes in the gial elements.

Course. The patient did improve but, at the time of discharge, bilateral papilledema and cerebellar signs were still present and left-sided pyramidal-tract signs were noted for the first time.

2nd Admission, August, 1932. The patient complained of headaches but, after several lumbar punctures which resulted in an apparent decrease in intracranial pressure, she was discharged as improved.

3rd Admission, October, 1932. At this time singultus and tinnitus had developed. Positive neurological findings were bilateral papilledema, bulging and tenseness of the suboccipital decompression, unsteadiness of gait, ataxia, moderate dysdiadochokinesia on the left, a decreased left corneal reflex, and an increase in deep tendon reflexes throughout on the left. Clinical diagnosis was cerebellar tumor.

3rd Operation. No tumor was found in either cerebellar hemisphere or within the vermis. Biopsies were taken.

Pathologic Report. Sections of biopsies showed gliosis of the cerebellar cortex, and in parts normal cerebellar cortex.

Course. Postoperatively the patient exhibited choreiform movements of the right upper extremity. The bilateral papilledema receded slowly following frequent tapping of the suboccipital region for accumulation of fluid. She was discharged on Dec. 22, 1932, unimproved.

4th Admission, April, 1933. She complained of vomiting and spots before her eyes but was discharged unchanged after several lumbar punctures. The same findings were noted as in the past.

5th Admission, July, 1933. The patient had headaches, vomiting, and spots before her eyes.

Examination. Although the neurological findings showed little change, there were hyperactive deep tendon reflexes in all extremities. Moderate optic atrophy also was noted. On July 6, 1933 ventriculography showed dilatation of both lateral and the 3rd ventricles; for the first time, the right lateral ventricle appeared displaced upward and anteriorly. During the interval between air study and operative intervention on July 14, 1933, a left homonymous hemianopsia was first described.

* This work was supported by grant C-5482 of the United States Public Health Service and by a Special Fellowship NB391 from the National Institute of Neurological Diseases and Blindness, Public Health Service.
Fig. 1. Cerebellar tumor. Cells resembling astrocytes are seen in a background of very vascular tissue with cyst-like spaces filled with a homogeneous pink-staining fluid. Hematoxylin and eosin, X100.

Fig. 2. Cerebellar tumor. High-power view of area in Fig. 1. Hematoxylin and eosin, X250.