ANGIOBLASTIC MENINGIOMA IN A CHILD

REPORT OF A CASE FOLLOWED FIVE YEARS*

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In pediatric neurosurgery the meningioma is considered to be a tumor of unusual occurrence. Cuneo and Rand reported only 2 cases in a series of 83 intracranial tumors occurring in children. Ingraham and Matson recorded 1 case in a group of 313 tumors studied. Cushing and Eisenhardt, in reporting their series of 295 patients with intracranial meningiomas, found only 5 lesions in the preadolescent age group. Among 427 verified brain tumors occurring in childhood, Craig et al found 11 cases of meningioma.

Especially uncommon in children is the angioblastic form of meningioma. Of 23 such tumors, Cushing and Eisenhardt noted that only 1 occurred in a patient less than 13 years of age. One of the 2 tumors reported by Cuneo and Rand was an angioblastic meningioma found in a 3-month-old boy whose symptoms had been present since birth. This patient was moribund when seen and expired 11 days later. Perhaps one of the earliest reported cases of angioblastic meningioma in childhood was recorded by Corten (cited by Bailey et al.) in 1921. This patient, a 5-day-old infant who had seizures, was found to have a tumor arising from the tentorium which projected supratentorially. At autopsy, a diagnosis of "Haemangioma sarcomatodes" was made.

It is felt by many that meningiomas occurring in these younger ages are more prone to sarcomatous behavior and thus are attended by a poorer prognosis than their counterparts in the adult. Since these tumors in general, and the angioblastic variant in particular, are so rare in childhood, the following case is described.

CASE REPORT

E.W., a 6-year-old Caucasian boy first seen here in October, 1954, complained of generalized headaches of 1 year's duration. A month before he had fallen from a tree and subsequently suffered increased headache and blurring of vision.

Examination revealed marked bilateral papilledema, slightly enlarged head, and diminished right abdominal reflex. Roentgenograms of the skull showed thinning of the calvarium and widening of the cranial sutures.

Ventriculography was attempted on Oct. 26, 1954. On entering the left occipital lobe, the needle encountered a cavity from which 150 ml. of xanthochromic fluid were aspirated. Roentgenograms made following air injection revealed a cystic lesion in the left parietal region with a shift in the midline structures to the right.

At the following craniotomy, a left parietal cyst adjacent to the sylvian fissure was explored and a plumsized, firm, gray tumor was encountered within it. A biopsy was reported initially as "malignant growth, probably glioblastoma" and no further extirpative attempt was made.

The child recovered rapidly following this operation, being able to return on school on Nov. 15, 1954.

Permanent sections of the tumor biopsy were interpreted by the Armed Forces Institute of Pathology as angioblastic meningioma. This diagnosis was later confirmed by Dr. Louise Eisenhardt. Examination on readmission to the hospital on Dec. 6, 1954 indicated the persistence of 2-diopter bilateral papilledema as well as a slight increase in the right patellar reflex. The previously fashioned osteoplastic flap overlying the left parietal region was elevated 2 days later exposing a tumor which extended into the left temporal lobe. Grossly, it appeared well demarcated from the surrounding brain. A mass 7 cm. × 5 cm. × 3 cm. in dimension was enucleated.

The patient again responded satisfactorily after this procedure. His convalescence was complicated by a right-sided seizure but, after beginning anticonvulsant therapy, was uneventful.

On March 28, 1955 the patient was readmitted for cranioplasty. A small residual defect in the replaced bone flap was covered adequately by a Vitallium plate and the patient was discharged symptom free and neurologically negative on April 18, 1955.

The patient has been followed in this clinic since his initial visit. The optic fundi had returned to normal by June 1955, and anticonvulsant medications were discontinued entirely in August 1956. Since then he has continued to remain asymptomatic with no neurological deficit. His performance in grade school has been satisfactory. At the last visit on March 14, 1960 (5 years and 5 months after his initial surgery) he stood 62 inches tall and weighed 180 lbs. He appeared bright and normal in all respects.
Fig. 1. Appearance of a portion of tumor showing meningothelematous elements with whorl formation and tumor giant cells (hematoxylin and eosin, X100).

Fig. 2. Section of tumor which shows angioblastic activity with many abnormal vascular channels lined by hyperplastic endothelium (hematoxylin and eosin, X100).
DISCUSSION

In 1928, Bailey et al. reported 3 cases and cited a fourth of supratentorial meningiomas that resembled the cerebellar hemangioblastoma in certain respects. Both types of tumor were characterized by abnormal vascular elements, usually angioblastic in nature, and by the proliferation of reticulin about the vascular spaces. However, all 4 of these tumors were solid lesions that possessed the microscopic appearance of meningiomas as well. Later, Cushing and Eisenhardt studied a collection of 23 such tumors and grouped them into three variants under their Type IV category of meningiomas.

Kernohan and Sayre prefer to list their angioblastic lesions with the blood-vessel neoplasms. Certainly, angioblastic meningiomas resemble the predominantly infratentorial angioblastomatous lesions. However (as the illustrations of this tumor show), many possess elements of typical meningotheliomatous growth. That these lesions may represent a link between the two tumor categories has been postulated previously by Bailey et al.

The microscopic sections of the tumor in our case (Figs. 1 and 2) reveal meningothelial areas with minimal whorl formation. In many areas there are abnormal vascular spaces surrounded by fine fibers of reticulin. Some of these channels are occluded by hyperplastic endothelium. Many tumor giant cells and foam cells are evident but mitoses are not prevalent. Some mesenchymal connective tissue is present in isolated areas. In some sections infiltration of brain tissue was noted, but a fairly distinct tumor-brain border-line was evident. This tumor would likely fall into the Cushing-Eisenhardt classification of Type IV, variant 2.

SUMMARY

A case of angioblastic meningioma that occurred in a 6-year-old boy is reported. Despite microscopic evidence of invasion of brain by the tumor in tissues removed 5 years and 5 months ago, the patient has enjoyed a relatively uneventful postoperative course and at present is without neurological deficit. The angioblastic variant of meningothelial tumors is of uncommon occurrence, especially in preadolescent patients. The histological appearance and biologic behavior of these unusual lesions are variable, but some are amenable to surgical extirpation with good results.

REFERENCES

6. Eisenhardt, L. Personal communication.