Cystic meningioma

Case report

PETER LAKE, M.D., JAMES S. HEIDEN, M.D., AND
JEFF MINCKLER, M.D., PH.D.
Eisenhower Medical Center, Palm Desert, and Los Angeles, California

Cystic meningiomas are rare variants of the usually solid tumor. A case is presented, together with a discussion of the relationship to cystic changes in the histologically similar angioblastic meningiomas and posterior fossa hemangioblastomas.

KEY WORDS · brain tumor · cystic meningioma · hemangioblastoma

MENINGIOMAS are usually thought of as firm, solid tumors. Although several classifications and familiar variants of this tumor exist,4,7 most standard references1-3,6,9,11 make no mention of cystic meningioma. Russell and Rubinstein8 refer briefly to one case occurring in the cerebellum, and state that cysts are rare. Cushing and Eisenhardt5 note that gross cyst formation is a rare finding at the periphery of the tumor with no evidence of adjacent degeneration; they reported seven cases, emphasizing that this form produces a degree of intracranial tension that may be out of proportion to the size of the tumor. Wentworth, et al.,10 reported a large parietooccipital cystic lesion containing 150 cc of xanthochromic fluid with a plum-sized firm gray tumor within it; the Armed Forces Institute of Pathology diagnosed the lesion as angioblastic meningioma with meningotheliomatous elements.

Case Report

On the evening of admission, this 43-year-old obese woman was found lying in bed at home, unconscious. History obtained from her husband indicated she had undergone two resections of right frontal parasagittal meningiomas, 13 and 5 years previously. A long-standing focal motor seizure disorder was under good medical control and she had been asymptomatic earlier that evening. She was right-handed.

Examination. The patient was unconscious with a blood pressure of 150/60, pulse 100, and shallow spontaneous respirations. The pupils were 4 mm in diameter, equal, and fixed to light. Corneal reflexes were absent. The optic discs appeared normal. Although in decerebrate posture, she withdrew all extremities weakly in response to noxious stimuli. Deep tendon reflexes were symmetrically depressed, and bilateral extensor toe signs were noted. The remainder of the physical examination was unremarkable. Routine laboratory studies showed a blood sugar of 185 mg%, blood urea nitrogen (BUN) 17 mg%, sodium 138 mEq/l, potassium 3.4 mEq/l, CO₂ 26
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Fig. 1. Right carotid angiogram, lateral (left) and anteroposterior (right) views, showing large right frontoparietal mass (four upper arrows), and transtentorial herniation (lower arrow).

mEq/l, hemoglobin 14.3 gm%, and evidence of a urinary tract infection. Blood barbiturates (long acting) were 0.9 mg%. Blood alcohol was negative. A lumbar puncture released clear spinal fluid with an opening pressure of 175 mm H₂O. Echoencephalography suggested a right-to-left shift. A right carotid arteriogram (Fig. 1) revealed a large right frontal avascular mass, and transtentorial herniation.

Operation. A right frontoparietal acrylic cranioplasty was removed. The cortex was firm and thickened. At a depth of 1 cm in the subcortex, a blue translucent cyst was encountered; this contained approximately 40 cc of xanthochromic serous fluid. A biopsy of the cyst wall (Fig. 2) was interpreted as meningioma. The cyst was drained and resected; it seemed to arise from a vascular, fleshy pedicle posteroomedially. There was no suggestion of communication with the ventricular system.

Postoperative Course. The patient remained decerebrate, responding only to noxious stimuli with all extremities. The pupils remained fixed in the midposition. Corneal reflexes returned. She developed pneumonia and died several days later without regaining consciousness. Autopsy revealed axial distortion with central pontine hemorrhage.

The details of her history, which were not available until postoperatively, revealed that 13 years previously she had developed severe headaches, left-sided focal motor seizures, and papilledema. A ventriculogram was reported as showing a cystic cavity 6 x 7 cm in the right frontal area. At surgery, the cystic tumor was subtotally resected after sectioning bridging vessels to the falx; histologically, it was interpreted as a syncytial (meningotheial) meningioma with an angiomatosus component. The patient did well until 8 years later when a recurrence of symptoms led to a second craniotomy, revealing a recurrent cystic parasagittal meningioma that had invaded and occluded the middle third of the superior sagittal sinus. Resection was

Fig. 2. Microscopic section of cyst removed in the third operation. H & E, X 100.
carried out successfully and the patient did well for another 5 years, until the day of her final admission.

Discussion

The cystic capsule-like mass removed at the third operation was typical also of the primary tumor and of the first recurrence. Histologically, the three successive tumors are essentially the same (Fig. 3). There is no suggestion of change in structural detail nor is there evidence of increasing malignancy by histologic grading.

Each of the three tumors retains angio-blastic components. Recurrence in this category of meningioma is not unexpected. Angio-blastic meningiomas display histological similarity to hemangioblastomas of the cerebellum. The latter are often cystic and represent hamartial space-occupying lesions that are close structural relatives to the tumors described in this report.

Fig. 3. Photomicrographs of the three tumors. Upper Left: First tumor, 13 years earlier. Upper Right: Second tumor, 5 years earlier (first recurrence). Lower Left: Third tumor, present admission (second recurrence) showing no progress in malignancy. Lower Right: Third tumor, microsection of angio-blastic component. H & E, X 250.
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References


Address reprint requests to: Peter Lake, M.D., Eisenhower Medical Center, Palm Desert, California.