Successful removal of a large meningioma in a three-year-old boy

Case report

THOMAS E. KLUMP, M.D., AND JOSEPH V. MC DONALD, M.D.
Riverside, California

A 300 gm fibroblastic meningioma was successfully removed from the right frontal lobe of a 3-year-old boy. It extended into and distorted the right ventricle but had no obvious meningeal attachment. One month after surgery, the patient developed a spastic paraparesis probably due to vascular insufficiency of the regions supplied by the anterior cerebral arteries. This neurological deficit cleared within 6 months, and the neurological examination 3 years postoperatively was normal.

KEY WORDS large meningioma child excision

MENINGIOMAS in children are rare, tend to be large, and frequently are malignant. Their successful surgical removal is even more unusual. The case reported below describes the removal of a 300 gm fibroblastic meningioma from the frontal lobe of a 3-year-old boy.

Case Report

This 3-year-old boy was admitted to Strong Memorial Hospital, Rochester, New York, on July 7, 1966, because of clumsiness, weakness, lethargy, and vomiting of 6 months duration. His growth and development before had been normal. Approximately 1 month before admission, he shifted dominance from left to right hand and soon developed an obvious weakness of his left arm and leg. On July 4, he fell from a merry-go-round and struck his head but was not unconscious. However, he deteriorated from that day with rapid progression of his symptoms.

Examination. The patient was a well-developed, irritable white lad whose head appeared larger than normal. There was bilateral papilledema, left lower facial weakness, and left hemiparesis. The tendon reflexes were hyperactive on the left, and the left abdominal reflexes were depressed. There was no Babinski sign. Skull x-rays revealed splaying of the coronal sutures. The electroencephalogram showed delta waves of 1 to $1\frac{1}{2}$ cycles/sec over the right frontotemporal region. There was intensive radioactivity in the right frontal area on brain scan with 99-Technetium (Fig. 1). Carotid angiography demonstrated a large avascular right frontal area.

Operation. Right frontal craniotomy was performed on July 27, 1966. Only a small portion of the tumor was seen on the surface of the brain, the rest of the surface being covered by a thin layer of cortex. There was no apparent meningeal attachment. The tumor extended deep into the right lateral ventricle which was very distorted. In relation to the brain and the choroid plexus, the tumor was enormous, and it would have been easy to miss a small attachment as the base of the
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FIG. 1. Right lateral brain scan.

The tumor was delivered from within the brain. We could not be certain of a definite point of origin. The tumor was firm, lobulated, white, and avascular; no major vessel was encountered as the tumor was dissected.

The gross specimen measured $9 \times 10 \times 5$ cm and weighed 300 gm (Fig. 2). Histologically, the oval-shaped nuclei formed whorl patterns between delicate collagenous fibers. There were no mitotic figures or necrosis (Fig. 3). The diagnosis was fibroblastic meningioma.

**Postoperative Course.** There was improvement in the level of consciousness and almost complete return of strength in the left arm and leg. However, 1 month after surgery, the patient gradually developed a spastic weakness of the right leg which was followed in several days by a similar weakness in the left leg. He remained bright and alert, but could no longer walk. A repeat brain scan showed improvement over the original study, and a Pantopaque myelogram was normal. With intensive physical therapy he slowly improved over several months. In March, 1968, he had only slight clumsiness with his left hand. Formal psychological testing in October, 1968, revealed a full scale score of 84: verbal, 91, and performance, 80 (Wechsler Scale). He maintained a short attention span but progressed well in elementary school work. His neurological examination was normal in May, 1969. He has since had no seizures and is not taking any medications.

**Discussion**

Recent reviews of the literature attest to the rarity of meningiomas in children. These tumors tend to be very large when discovered and often are sarcomatous. This boy's tumor was larger than average, even by adult standards, and exhibited no evidence of malignant change.

The relatively silent clinical course of these tumors allows them to reach an enormous size before discovery. Our patient's minor head trauma probably caused enough cerebral edema around the tumor to account
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for the rapid progression of his symptoms after the injury.

The successful removal of these tumors is often a formidable task and carries a high operative mortality\(^1\),\(^2\),\(^3\),\(^4\) and morbidity.\(^5\),\(^6\) Approximately 1 month postoperatively, our patient gradually developed spastic paraparesis. Up to this point, his convalescence had been normal with nearly complete recovery from the original left hemiparesis. There was no evidence of increased intracranial pressure, and a myelogram was normal. The preoperative cerebral angiogram had revealed marked distortion of the anterior cerebral arteries. We feel that the postoperative paraparesis was related to vascular insufficiency of the portion of brain supplied by the anterior cerebral arteries and that the subsequent recovery could be attributed to collateral circulation.

Summary

A 300 gm fibroblastic meningioma was successfully removed from the frontal lobe of a 3-year-old boy. An interesting postoperative paraparesis developed and has been discussed. The patient is free of seizures and neurological deficit at 6 years of age.

References


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Address reprint requests to: Thomas E. Klump, Major, FV161305498, 483rd USAF Hospital, PSC #1, Box 8091, APO San Francisco, California 96326.