Solitary plasmacytoma in the cranial cavity

Case report

SU K CHUL CHANG, M.D., Ph.D., AND BAO-SHAN JING, M.D.
Departments of Pathology and Diagnostic Radiology, The University of Texas M.D. Anderson Hospital and Tumor Institute, Houston, Texas

Solitary plasmacytoma in the cranial cavity is a rare lesion. As far as we could ascertain, only five cases of solitary intracranial plasmacytoma have been reported in the literature. Several characteristics distinguish this solitary tumor from other plasmacytomas in the cranial cavity. It is not associated with adjacent lesions in the skull or with tumors of other sites. After complete removal of the tumor by surgery or irradiation, or a combination of both, patients remain free of symptoms. This case report concerns a patient with an unusually large tumor, which was treated by surgery and irradiation therapy. The patient still has no evidence of recurrent disease approximately 3 years after treatment.

Case Report

A 47-year-old Mexican man was admitted to The University of Texas M. D. Anderson Hospital on November 27, 1966, with a chief complaint of occipital headaches which had begun as occipital pain after extraction of a lower right molar tooth in January, 1966. The pain spread to the frontal region, persisted intermittently for about 1 month, and then subsided. In February, 1966, he was involved in an automobile accident and received a small laceration of the scalp and back of the left ear, but never was unconscious.

In September, 1966, following sudden movement of the head, the headaches returned in the occipital region and spread bilaterally to the frontal area. The patient described the pain as a sensation of weight on the back of his head. The headaches were not associated with nausea or vomiting. There were no other complaints.

Examination. The patient was alert and well oriented. There was no disturbance in speech and no numbness or weakness in the extremities, no history of convulsions, and no deformity or tenderness of the head. All the cranial nerves were intact. General physical findings were normal. The electroencephalogram was diffusely, moderately slow and showed a very poorly localized focus of moderately slow activity in the right posterior parietal region. The nature of the lesion could not be determined from the electroencephalographic findings alone, but was considered to be a chronic rather than acute type. The blood calcium was 4.4 mg%. All the other laboratory tests were normal. The lateral roentgenogram of the skull revealed a large rounded radiolucent defect in the right parietal area measuring 8.5 cm in greatest dimension with a thin calcified rim. The lesion was arising from within and eroding the inner table. The margins of the erosion were graduated and smooth. The sella turcica was well outlined and appeared normal. The pineal body was not calcified (Fig. 1).
A right carotid arteriogram showed the anterior cerebral artery to be displaced significantly to the left. The intercerebral branches were displaced downward by the lesion along the lateral parietal bone. An area of avascularity was seen in this region. The external carotid artery overlying this area was fairly large and somewhat tortuous (Fig. 2).

Operation. On November 29, 1966, following right carotid arteriography, the patient underwent a right parietal craniotomy. The parietal scalp incision was carried down to the skull, five burr holes drilled, and the free bone flap removed. The bone was markedly thinner at the midportion of the flap. The tumor was entirely extradural and easily stripped from the dural surface. It was very vascular and measured approximately 2 cm in its thickest portion. It extended slightly beyond the coronal suture, and another small piece of bone was removed to permit removal of the tumor. The tumor extended up toward the sagittal sinus, and therefore not all of the tumor was removed around the sinus. After the tumor was stripped off the dura, pledgets of gelfoam were placed in the sagittal sinus.

Pathological Examination. The tumor was made up of multiple masses of hemorrhagic, soft, grayish, tissue which measured 9 cm in aggregate. Microscopic examination showed that the specimen consisted entirely of plasma cells (Fig. 3 left). Calcified areas thin and linear in appearance were seen in the rim of the tumor (Fig. 3 right). In some areas the section was markedly hemorrhagic. However, no macrophages or hemosiderin pigments were noted.

Postoperative Course. Recovery was uneventful, and the patient was discharged from the hospital on December 9, 1966, to be followed as an outpatient by the neurosurgery, x-ray therapy, and hematology services. Three years after surgical removal of the tumor, the patient is well, shows no other abnormal lesions in the x-ray examinations, and serum protein is within normal limits.

Discussion

The solitary intracranial plasmacytoma is a different entity from the usual plasmacytoma in the cranial cavity. The latter is accompanied by an adjacent lesion in the skull or is present as a manifestation of other skeletal involvement. With the solitary plasmacytoma there are no lesions in other parts of the body; the bone marrow shows neither abnormal plasma cells nor abnormal protein, and serum hyperglobulinemia is not observed.

To date, only five cases of solitary plasmacytoma in the cranial cavity without involve-