EXTRACRANIAL METASTASES OF A GLIOBLASTOMA MULTIFORME

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(Received for publication July 3, 1961)

Well documented cases of extracranial metastases from primary gliomas of brain are rare. Although the literature contains reports of metastasizing gliomas, those that have been widely accepted are few. For a case to be acceptable as a true example of a metastasizing glioma, Weiss outlined the following minimal criteria:

1. The presence of a single histologically characteristic tumor of the central nervous system must have been proven.

2. The clinical history must indicate that the initial symptoms were caused by this tumor.

3. A complete autopsy must have been performed and reported in sufficient detail to rule out the possibility of any other primary site.

4. The morphology of the tumor of the central nervous system and of the distant metastases must have been identical with due allowance for differences in degrees of anaplasia.

It is believed that the following case fulfills these criteria. For the reason that a report of such a case, well documented, would be of fundamental interest to students of neoplastic diseases this presentation is made.

CASE REPORT

In December 1957 a 31-year-old white male school teacher had an attack of loss of consciousness and dizzy spells associated with involuntary twitching of the right eyelid and right shoulder. In January 1958 a second episode of unconsciousness with jerking of the head, arms and legs occurred. Electroencephalographic and pneumoencephalographic studies were considered normal at that time. He was placed on Dilantin and phenobarbital therapy and was entirely asymptomatic throughout the summer of 1958.

In September 1958, the patient became somewhat apathetic and disinterested toward his work and family. Shortly thereafter there occurred intense generalized headaches associated with intermittent nausea and vomiting. He appeared drowsy and perplexed, and, on several occasions, was observed to be unresponsive. He was admitted to the hospital on Sept. 19, 1959, after having two convulsive seizures of Jacksonian type involving the right side of his body.

Examination. His mental status at this time varied from complete orientation to complete confusion associated with the “Witzelsucht” phenomenon. He had slight right facial weakness, right hyperreflexia and a positive right Babinski’s sign.

An electroencephalogram on Sept. 19, 1938 revealed a left frontotemporal slow-wave focus. Urinalysis, blood serology, hemogram, and erythrocyte sedimentation rate were normal. Roentgenograms of the skull showed the pineal gland to be shifted slightly to the right. Roentgenograms of the chest showed a nodular density in the right 4th intercostal space which was believed to be of a granulomatous rather than a neoplastic nature. Left carotid angiography revealed evidence of a space-occupying lesion in the left frontoparietal region.

Operation. On Sept. 23, 1958, a left transfrontal craniotomy was performed. A large cystic infiltrating tumor was encountered in the posterior portion of the left frontal lobe. In the most posterior portion of the left frontal lobe, the tumor was noted to extend through the cortex to the external surface of the brain. The anterior portion of the left frontal lobe was amputated and a subtotal removal of the tumor was effected.

Histological Examination. The tumor was a glioblastoma multiforme. In most areas it was very cellular. The cells were very pleomorphic and contained hyperchromatic nuclei, so that they bore only a faint resemblance to astrocytes. Numerous bizarre giant cells with abundant

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cosinophilic cytoplasm and nuclei containing abnormal mitotic figures were present (Fig. 1). In many areas (Fig. 2) there was pseudopalisading of elongated, somewhat spindled cells around a central area of necrosis. Vascular proliferation was very prominent with numerous large endothelial cells. The total picture was considered diagnostic of a very active glioblastoma multiforme.

Postoperative Course. The patient received a course of deep roentgen therapy (5,000 tissue roentgens) to the left frontoparietal area. His headache and seizures disappeared but he still exhibited frontal-lobe symptomatology. He was discharged from the hospital in November 1958. He was on Dilantin 100 mg. q.i.d.

When seen on April 9, 1959, the patient was teaching school and was without complaints. However, his condition changed shortly thereafter and he was readmitted to the hospital because of increasingly severe frontal headaches, anorexia, and lethargy.

2nd Admission, April 20, 1959. Neurological evaluation revealed only what were considered to be frontal-lobe symptoms—an odd affect with lack of attention, and inappropriate laughter. The hemogram was within normal limits, erythrocyte sedimentation rate was 29 mm./hr.; urinalysis, serology, blood urea nitrogen, and serum electrolytes were normal. Roentgenograms of the chest again revealed a nodular density in the right 4th interspace which was unchanged in appearance from the previous study.

Deep roentgen therapy was initiated for a second time on April 22, 1959. On April 28, 1959 he became very lethargic and semicomatose. Aspiration through one of the anterior trephine holes with removal of 35 cc. of amber-colored fluid brought about immediate improvement in his state of consciousness. Over the succeeding 12 days the cyst was re-aspirated three more times, each time with a dramatic response in his state of consciousness. Deep roentgen therapy was complete on May 25, 1959, when he had received a total of 5,000 tissue roentgens. He was discharged from the hospital on May 27, 1959. At that time he was alert, oriented, but still manifested some frontal-lobe symptoms.

Course. He was maintained on Dilantin, 100 mg. t.i.d. and meprobamate, 400 mg. q.i.d. He was able to do light work about the house, play cards, fish, etc. Then, because of pain in his left leg which gradually spread to the right leg and prevented ambulation, he was admitted to the

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Fig. 1. Photomicrograph of glioblastoma multiforme removed at craniotomy, showing bizarre giant cells and gemistocytic astrocytes. (X400)