MULTIPLE PRIMARY NEOPLASMS OF THE CENTRAL NERVOUS SYSTEM

REPORT OF A CASE OF SPINAL EPENDYMOMA AND AN INTRACRANIAL MENINGIOMA. INTERVAL OF FOURTEEN YEARS*

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Multiple neoplasms of the central nervous system are no longer pathological curiosities, but in most reported cases the tumors arose from the same germ layer. Courville\(^2\) in 1936 collected from the literature 113 cases of multiple gliomas of the brain, to which he added 21 of his own. The case of multiple intracranial meningioma, reported by Echols\(^6\) in 1941, brought to 53 the total up to that time. Two cases of combined acoustic neurinoma and meningioma were reported by Davidoff and Martin.\(^4\) Cushing and Eisenhardt\(^5\) had formerly called attention to the frequent association of tumors of the meninges with acoustic neoplasms, and it was the feeling of Kernohan\(^9\) that multiple meningioma and neurofibroma are genetically related.

List\(^1\) reported a case in which he removed four meningiomas from the region of the foramen magnum and the upper cervical cord. The patient of Rand\(^2\) had separate spinal meningiomas at T3 and T6.

Alexander\(^1\) was able to find only 4 cases in which an intracranial meningioma was reported in association with a glioma of the cerebral hemisphere. To these he added 1 case of his own. Since that time Gass and Van Wagenen\(^7\) have reported a meningioma adjacent to an oligodendrogliona, and a patient of Feiring and Davidoff\(^8\) had a meningioma in association with a glioblastoma multiforme. The 1940 edition of Wilson's\(^16\) textbook of neurology collected from the literature 11 cases of multiple heterogeneous intracranial new growths.

Kaclher\(^8\) pointed out the possibility of dissimilar lesions of the cerebrospinal axis by reporting his case of an intracranial meningioma associated with syringomyelia. Poser\(^4\) recently reviewed the literature and showed the frequent association of syringomyelia with intramedullary neoplasms of the spinal cord. Syringomyelia is in this case a complication.

Because of the relatively few reported cases of heterogeneous neoplasms of the central nervous system, we are reporting our experience with a case of intracranial meningioma and a spinal ependymoma.

**CASE REPORT**

This was our first case of ependymoma with complete recovery.

Mrs. C.N., a 44-year-old, right-handed housewife, was first seen in August of 1941 with a 10-month history of progressive weakness in both legs and difficulty in walking. There was some mild discomfort in the thoracolumbar region on weight-bearing and numbness in both legs, which had begun 3 or 4 months after the onset of motor weakness and had ascended to the upper abdomen. For the past 4 or 5 months before examination, she had been unable to appreciate changes in temperature in the lower extremities. There was no significant abnormality of bladder or bowel.

Examination, Aug. 18, 1941. There was marked weakness in both lower extremities and she was unable to walk without assistance. There were increased reflexes in both legs, transient ankle clonus, and bilateral Babinski sign, with no involvement of the upper extremities. While touch and position sense were fairly good in the lower extremities, loss of sensation of pain, temperature, vibration and stereognosis extended upward to the level of the 5th rib.

Myelography revealed a complete block at the upper border of the 7th thoracic vertebra.

Operation. Laminectomy, extending from C7 through T6 inclusive, showed moderate swelling of the cord, greatest at the level of T5. The spinal cord was incised in the midline and a dark red, sharply circumscribed tumor, attached only in the region of the central canal, was carefully removed. The tumor extended throughout the length of the exposure and the estimated weight was 20 gm.

Microscopic Examination (Fig. 1). The tumor was composed of spindle cells that varied in shape and size, with hyperchromatic nuclei which were highly granular. Mitotic figures were present but were not abundant. There was a tendency to rosette arrangement. Diagnosis: Ependymoma.

Course. Her condition following surgery was definitely worse, but she was able to walk within 6 months, and at the end of the year walked perfectly, although she tired easily. Pain and other forms of sensation recovered completely, except for some hypesthesia in the sacral segments on the left. Reflexes were essentially normal.

Interval History. In 1948, the patient had a thyroidectomy with removal of a benign adenoma, and in 1950 a hysterectomy for a uterine fibroid. Gait had continued to be normal and she had no symptoms until 1953.

Fig. 1. Photomicrographs of ependymoma, intramedullary, C7-T6. Total removal in 1941, with complete relief of symptoms.
Readmission. She was re-examined in the hospital in July 1955, at which time there was a history of throbbing headaches, often localized to the right orbital area, which had begun 19 months before. Examination revealed the patient to be in semicoma with left-sided weakness, cogwheel rigidity, positive Hoffmann sign, Babinski sign, and increased deep reflexes. There was a mild papilledema with moderate nuchal rigidity, and a spinal puncture had shown a pressure of 370 mm. of cerebrospinal fluid. Electroencephalography revealed a slow wave focus in the right frontotemporal area.

Operation, July 12, 1955. Ventriculography demonstrated a shift to the left with typical temporal lobe findings. At surgery, immediately following, there was an area of softening in the tip of the right temporal lobe, and exploration with a cannula disclosed a large sphenoidal ridge meningioma. This was completely removed, and its attachment to the medial portion of the sphenoidal ridge was less vascular than in similar tumors.

Course. In spite of this, postoperative clots were evacuated on the 1st and 2nd days following surgery, after which her recovery was uneventful except for partial left homonymous field defect. She was able to resume her household duties within a short time.

Microscopic Examination (Fig. 2). The tumor was cellular, and the cells were uniform in size and shape, most of them having a spindle configuration with a tendency to whorl formation. A moderate amount of collagen was seen, and the vascular supply was abundant. Weight of the tumor was 40 gm. Diagnosis: Meningioma.
SUMMARY AND CONCLUSIONS

1. The literature on the occurrence of multiple neoplasms of the central nervous system has been reviewed.
2. A case has been reported, recording the occurrence of a spinal cord ependymoma and a sphenoidal ridge meningioma in the same patient, with an interval of 14 years between surgical removal of the tumors.
3. Multiple neoplasms of the central nervous system are not uncommon, but usually arise from the same germ layer. Instances of occurrence in heterogeneous germ layers have been quite rare, as indicated by the few case reports. This case, we believe, is the first instance of intracranial meningioma and spinal ependymoma occurring in the same patient.

REFERENCES