Intracranial Tumors with Extracranial Metastases
Case Report and Review of the Literature

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In recent years many reports of intracranial tumors with extracranial metastases have appeared in the literature. Most of these cases have been adequately documented histologically. Ley et al.25 in a recent report have presented a good review of intracranial tumors with metastases outside the cranium. We were stimulated by this review to report a case of our own occurring in a child.

Little emphasis has been placed upon the occurrence of extracranial metastases in children in previous reports that have appeared in the literature. In several of the reports various types of intracranial tumors have been summarized, but no attempt has been made to analyze them in greater detail. It is our intention to review the literature of extracranial metastases with respect to types of tumors, age groups, and their preference for sites of metastases.

Case Report

#29767/32539/33348. J. C., a 2½-year-old white, adopted boy, was admitted to the Boston Floating Hospital for the first time on Sept. 17, 1957. About 30 hours prior to his admission he apparently had rapid onset of severe headache with bouts of vomiting and progressive disorientation. He became alternately lethargic and irritable with fretful crying. There was no history of infection or head trauma.

Examination. He was lethargic and irritable and failed to respond to commands. There was a moderate degree of papilledema bilaterally, more marked on the left, with retinal hemorrhages, paralysis of abduction of the left eye, and a left central facial weakness. The deep tendon reflexes were slightly hyperactive on the left side with an extensor plantar reflex. There was no apparent sensory loss or motor weakness.

Roentgenograms of the skull showed the sutures spread, indicating increased intracranial pressure. The electroencephalogram was abnormal with generalized diffuse slow-wave activity, more marked on the left and more posteriorly.

The following morning, bilateral palsy of the 6th nerve was present and additional retinal hemorrhages appeared. Because of suspicion of an obstructive lesion of the posterior fossa, a Pantopaque ventriculogram was carried out. This, however, revealed a shift of the lateral ventricles and the 3rd ventricle from left to right, indicating instead a space-taking lesion of the left cerebral hemisphere. An air ventriculogram was performed immediately which confirmed the previous shift of the ventricular system and demonstrated the presence of a large mass in the posterior temporoparietal area on the left.

Operation. At craniotomy the dura mater was very tight, confirming the increased intracranial pressure. There was slight flattening of the gyri in the posterior parietal and occipital region and 10 cc. of brownish-yellow fluid were aspirated from a cystic tumor. Its protein content was 4.8 gm. per cent. A very large, rather necrotic, soft, yellowish tumor was found occupying the entire left occipital lobe, extending to the surface of the posterior temporal region inferiorly. It was attached firmly to the tentorium and extended to the cerebral falx. An occipital lobectomy was carried out and a large portion of the tumor was removed.

Histology (Fig. 1).

Postoperative course was uneventful and on Sept. 30, 1957, radiation therapy was started. On the 14th postoperative day, he was discharged to continue treatment as an outpatient. He was alert, active, and cheerful. The papilledema and the hemorrhages were fading, the paresis of the right 6th nerve was present, and there was a right homonymous hemianopsia as expected. There was no facial asymmetry or motor weakness, and the deep tendon reflexes were equal. He received approximately 4600 r tumor dose over a 6-week period.

During the follow-up period, he was doing extremely well without any signs and symptoms, save for the homonymous hemianopsia. In June 1958, 9 months after his first operation, he had some spells of vomiting, associated with a slight
chill. At times he had complained of pain over the back of the head and some shooting pain over his eyes. On examination then a moderate degree of residual papilledema on the left was noted, and the bone flap was slightly elevated. He was seen repeatedly after that.

2nd Admission. He eventually was readmitted on Aug. 4, 1958, with recurrent headache, vomiting, and bulging of the bone flap. He also suffered a severe loss of vision.

Examination. The previously mentioned findings were confirmed in addition to paresis of the right 6th nerve.

Roentgenogram of the chest was normal, and films of the skull showed again spreading of the sutures. The electroencephalogram again was abnormal because of slow-wave activity over the left posterior temporal and adjacent parieto-occipital areas. A ventricular tap disclosed a pressure of 350 mm. of water and a protein content of 190 mg. per cent. An air ventriculogram was done and demonstrated a recurrence of the mass in the left occipital region.

2nd Operation, Aug. 6, 1958. The area of internal decompression from the previous lobectomy was occupied by a variegated tumor with necrotic, liquefied, and hemorrhagic areas. The tumor was adherent to the falx medially and the tentorium below. After the tentorium was cut, tumor was found to have extended through and beyond the tentorium to lie above the upper surface of the cerebellar hemisphere. Removal of tumor for internal decompression again was carried out.

Postoperative Course. He did quite well, and at the time of discharge on Aug. 17, 1958, he was somewhat irritable, but his vision was improved. Papilledema on the left persisted. He continued to have intermittent headache and elevated temperature since the last operation. He had urinary frequency with evidence of a urinary infection. He also had mild right hemiparesis and impaired coordination on the left side.

3rd Admission, Nov. 3, 1958 (13 months after the first operation). He had managed to move around by crawling and apparently had some vision. Since the middle of September, a pseudomeningocele developed over a part of the incision line. He had intermittent vomiting.

Examination. As an additional neurological deficit, the right limbs were almost completely paralyzed, and the ataxia of the left limbs had increased. The pseudomeningocele presented itself as a shiny, translucent mass, projecting about