PITUITARY CARCINOMA IN A CHILD WITH DISTANT METASTASES

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(Received for publication July 3, 1961)

Pituitary tumors occurring in the pre-pubertal age are very rare, comprising probably less than 0.6 per cent of all intracranial tumors of childhood. In children, carcinomatous change in such a lesion associated with distant metastases has not been recorded, as far as we know. In addition, the experience of managing a lesion of such unique character was felt worth while reporting.

CASE REPORT

A 7½-year-old girl was admitted to the hospital on Nov. 20, 1956 because of recurrence of previous urinary symptoms and headache. During the summer of 1956, the child was noted to have transient episodes of excessive thirst, with intake of large quantities of fluids and frequent urination. This subsided, but the child continued to have nocturia. She began also to have left frontal headaches relieved by one tablet of aspirin. Her eyes were examined at school 3 months prior to admission and were described as normal. A urinalysis made at that time was said to have given “normal” findings. Immediately prior to admission gross disturbance in vision developed, manifested by stumbling and groping.

Past history revealed the usual exanthems of childhood without sequelae.

The family history was not remarkable.

Examination. The significant neurological abnormalities were: perception of form and light in the left eye, and preservation of only nasal vision in the right eye; the optic discs were “blurred.”

The spinal fluid contained 62 mg. per cent of protein and 107 red blood cells/mm.³

Roentgenograms of the skull showed barely visible posterior clinoid processes. The anterior aspect of the floor of the sella turcica suggested a destructive process. Suspecting a suprasellar tumor, a pneumoencephalogram was made on Nov. 26, 1956, which revealed a supra- and perhaps intrasellar mass. The spinal fluid obtained at this examination was grossly bloody suggesting at first a traumatic spinal puncture. However, throughout the entire air-fluid exchange, the cerebrospinal fluid remained bloody.

Operation. Right frontal craniotomy was then carried out. Blood was found in the subarachnoid space which we felt had been the source for the bloody spinal fluid. In approaching the right optic nerve and chiasm, a hemorrhagic mass was encountered. It was the surgeon’s (C.J.G.) first impression that this mass resembled a malignant melanoma. As the tumor was removed, considerable bleeding occurred. The pituitary fossa was excavated easily of very soft, friable bloody tissue. Its consistency was so soft that the differentiation between tumor tissue and blood was hardly possible. As the dissection proceeded, it became evident that the tumor invaded the dura mater between the optic nerves over the tuberculum sellae and extended laterally into the parasellar region. Removal of the tumor was accomplished as completely as possible.

Microscopic Examination. Sections of the surgical specimen showed a somewhat hemorrhagic tumor resembling the structure of the anterior lobe of the pituitary body. It consisted of chromophobe and acidophilic cells, still largely in tubular arrangement. In other areas, however, the tumor was of an immature pattern appearing as a blastema rather than in an alveolar form, but merging gradually here and there with the preformed hypophyseal tissue. The individual tumor cells were fairly large and varied in size. There was some nuclear disintegration as well as a fair number of mitotic figures. The arrangement of the cells was epithelial with numerous thin-walled capillaries between them. Small islands of tumor cells were seen within blood vessels of the dura mater as well as in the capsule of the tumor. These findings pointed to a malignant chromophobe adenoma, apparently fast-growing, and with invasion into blood vessels. Figs. 1 and 2 show some of the histologic details.

Course. The patient did well postoperatively except for a depressed state of “consciousness.” She was treated with cortisone, 25 mg. t.i.d., which was gradually decreased to 12.5 mg. t.i.d. On Dec. 3, 1956 (7 days after operation) polydipsia and polyuria occurred, being controlled with Pitressin. On this therapy she became more alert.

On Nov. 30, 1956 her vision began to improve and by Dec. 19, 1956 finger counting was possible with the left eye.

Because of the malignant nature of the tumor, roentgen-ray therapy of 1,500 r skin dose was delivered to each temporal port. She was discharged on Dec. 20, 1956 in good condition, to be maintained on cortisone 5 mg. t.i.d., and Pitressin 5 units, 3 times weekly.

Her progress was satisfactory until Jan. 30, 1957, when she had a major convulsive seizure. She was readmitted to the hospital.

2nd Admission. The only significant neurological finding at this time was a suggestive left facial weakness and questionable pallor of the optic nerves.

The hemogram and urine were normal. Except for a
FIG. 1. Photomicrograph showing, on the left, the subcapsular portion of the preformed tissue of the anterior lobe, separated by collagenous capsule from the tumor on the right. Hematoxylin and eosin, X192.

FIG. 2. High-power view of an area in the center of the tumor. Note hyperchromatism of several nuclei and cytoplasmic reticulum between nuclei of the tumor. Hematoxylin and eosin, X392.