PAPILLOEDEMA AND HYPOPARATHYROIDISM SIMULATING BRAIN TUMOR*

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Papilloedema associated with increased intracranial pressure usually raises as the primary differential consideration the possibility of brain tumor. Once this has been eliminated for the moment by such tests as pneumoencephalography, ventriculography and angiography, a variety of etiologic factors encountered much less frequently must receive attention. One of these that has been overlooked often is hypoparathyroidism. We have found in the literature reports of 12 cases of idiopathic hypoparathyroidism with papilloedema and 20 cases of postoperative hypoparathyroidism with papilloedema. This report is of 2 instances of the latter condition. In both, the possible presence of metastasis of thyroid carcinoma to the brain was considered and in each there was found electroencephalographic abnormality though overt convulsions did not develop. The confirmation of the diagnosis was by demonstration of abnormal calcium/phosphorus levels in the serum and by reversal of the condition by therapy correcting the altered electrolytes.

CASE REPORTS

Case 1. A 25-year-old, white, right-handed housewife entered the University of California Hospital on Feb. 8, 1955, complaining of blurring of vision of the right eye and of retronasal and retrobulbar headaches of 3 weeks’ duration.

Seven years before entry a subtotal thyroidectomy had been performed for the removal of “one growth that wasn’t cancer;” further details were not available. At a second operation, 4 months before this present admission, carcinoma of the thyroid had been found; it was treated by total thyroidectomy and radical dissection of the neck on the left side. She was immediately placed on 2 gr. of thyroid daily.

Three days after the total thyroidectomy (October 1955) she had an episode of carpopedal spasm, relieved by intravenous, then, later, oral calcium gluconate. She stopped the latter voluntarily after taking it 1 month. Subsequently episodes of carpopedal spasm with paraesthesiae occurred whenever she became excited.

Three weeks prior to the present entry, she noted the gradual onset of intermittent retrobulbar and retronasal pain plus persistent blurring in the right lower visual

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field. The only other symptom was occasional transitory decrease in hearing for the previous 2 weeks.

Examination. The patient was emotionally tense, wept easily, and coincidentally carpopedal spasms developed which were relieved by voluntary slowing of respiration. Inflating a blood-pressure cuff about either arm caused carpal spasm and paraesthesiae within 1 minute. Percussing either cheek in the region of the main branches of the 7th nerve would cause twitching of the cheek (positive Chvostek's sign). There was bilateral papilloedema, more on the right than on the left; neither hemorrhage nor exudate was seen. Visual fields were normal except for an enlargement of the blind spot to 12 degrees on the left and 17 degrees on the right. Visual acuity was 20/50 bilaterally. There were no lenticular opacities by slit-lamp examination.

A diagnosis of possible metastasis of thyroid carcinoma to the brain plus hypoparathyroidism was made on the basis of the history and physical examination.

Course. A roentgenogram of the chest was normal. In the basal projection of roentgenograms of the skull there was an asymmetry which was interpreted as bone destruction extending from the right petrous tip into the middle cranial fossa on that side and involving the carotid canal, the foramen ovale and the foramen spinosum. The optic foramina were normal.

Blood and urine were normal. On Feb. 16, 1955, total serum proteins were 6.8 gm. per cent, albumin 4.5 gm. per cent and globulin 2.3 gm. per cent. On that same day serum calcium was 6.0 mg. per cent and serum phosphorus was 5.6 mg. per cent. Two days later these values were 6.3 and 6.1 respectively.

On Feb. 12, 1955, burr holes and ventriculograms were carried out and on Feb. 14, 1955, a right-sided common carotid arteriogram was done. The studies were felt to be normal and did not substantiate the interpretation of the basal views of the skull mentioned above.

On Feb. 13, 1955, the spinal fluid pressure was 300 mm. of spinal fluid and the spinal fluid protein was 30 mg. per cent. Four days later the pressure was 400 mm. of spinal fluid.

An electroencephalogram, on Feb. 17, 1955, was reported by Doctor Robert B. Aird as follows:

"The resting record was characterized by alpha and beta rhythms of low and moderate voltages, which were transiently disturbed by theta activity that predominated frontally but at times involved all areas. Random slow waves of high voltage were noted on occasion in the left low frontal, central and anterior temporal regions. The record otherwise showed no clear evidence of focal pathology. The dysrhythmic activity was not exaggerated with either hyperventilation or photic stimulation. The generalized dysrhythmia would be compatible with a generalized cerebral dysfunction of convulsive or other nonspecific type."

The possibility that the papilloedema, which was becoming worse during this time, might be on the basis of hypoparathyroidism, was entertained. As a therapeutic test, treatment consisting of dihydrotachysterol, calcium lactate and Amphojel was instituted. Initially the oedema continued to advance with small hemorrhages and exudate being noted within the first 48 hours of treatment. Subsequently this subsided, however, and when the patient was last seen on April 4, 1955, the discs were characterized by secondary atrophy. Other symptoms had subsided completely. She was continuing on the therapeutic regimen under the direction of her family physician.