CYTOLOGIC DIAGNOSIS OF TUMOR CELLS IN CEREBROSPINAL FLUID*

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This article deals with the study of 22 consecutive cases of cerebrospinal fluid examinations in which the referring physician requested that the fluid be examined for tumor cells. Tumor cells were identified in 5 cases. In 17 cases no tumor cells were found and in only 1 of these was the presence of an intracranial tumor (acoustic neuroma) later proved. In 2 others there are reasonable grounds for suspecting that a tumor may have been present but this, subsequently, has not been demonstrated. In the remaining 14 cases the existence of brain tumor has been ruled out. The technic used for the smear preparations was centrifugation, smearing of the sediment on previously albuminized slides, fixation, and staining by the Papanicolaou method.

The 5 cases in which tumor cells were identified in the cerebrospinal fluid are presented in the following reports.

Case 1. C.S.D., a 61-year-old male, was admitted on Nov. 27, 1950 with fibrillary twitchings of the muscles of both hands and unilateral vocal cord paralysis. The CSF contained numerous tumor cells. Roentgenograms of the chest showed no abnormalities, and examination of the sputum for tumor cells gave negative findings. Ventriculography revealed an internal hydrocephalus with dilatation of the lateral and 3rd ventricles.


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Because of his critical condition no intracranial surgery was attempted and he expired Dec. 1, 1950.

Necropsy disclosed a small primary bronchogenic carcinoma in the upper lobe of the right lung with metastases to the brain and meninges.

Case 2. H.R., a 58-year-old male, was admitted March 19, 1951 with complaints of double vision and numbness of the right arm and right side of the face. Positive neurological findings were choked discs, paralysis of the left side of the soft palate, and impairment of pain recognition over the entire right half of the body. The CSF contained numerous large tumor cells suggestive of a metastatic origin (Fig. 1). Ventriculography disclosed a space-occupying mass in the brain stem above the 4th ventricle.

A polythene catheter was inserted between the right lateral ventricle and the cisterna magna to relieve the hydrocephalus. Temporary clinical improvement followed. A thorough search for the primary tumor was unsuccessful. Deep X-ray therapy to the head was ineffective and he expired on April 14, 1951.

Necropsy revealed a small highly malignant primary adenocarcinoma in the head of the pancreas with retroperitoneal and posterior mediastinal lymph node metastases. There was a solitary cerebral metastasis involving the dorsum of the pons and occluding the aqueduct of Sylvius.

Case 3. T.C., a 60-year-old man, was first admitted Dec. 28, 1951, when he presented signs and symptoms of a herniated lumbar nucleus pulposus which was excised with subsequent relief of symptoms. One month later he complained of severe headache, and bilateral choked discs were discovered. Roentgenograms of the chest showed mediastinal widening but no primary lung tumor. Cerebral angiograms revealed a left frontal tumor. Two CSF specimens were negative for tumor cells but a third specimen obtained after agitation of the lumbar subarachnoid fluid by repeated aspiration and injection contained numerous large bizarre tumor cells (Fig. 2).

![Fig. 2. Many bizarre tumor cells.](image-url)