

19. Cytologic Features of Tumors of Central Nervous System

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There has been marked increase in utility of aspiration cytology for pathologic diagnosis. It may be applied to any kinds of organs and substitute surgical biopsy. Because of high risk of complication and difficulties in localization, the cytology in central nervous system(CNS) has been used with less frequency compared to other fields. However, with the advent of sophisticated imaging instrument, aspiration cytology of lesions in CNS is used increasingly.

We present cytologic features of brain tumors as well as corresponding histologic findings. Six brain tumors were aspirated intraoperatively and stained with Papanicolaou method; 1 central neurocytoma, 1 malignant ependymoma, 1 benign neurogenic tumor, 1 glioblastoma multiforme, and 2 anaplastic astrocytomas.

The cytologic and histologic findings correlated well. In central neurocytoma, cells had round, monotonous nuclei with perinuclear halo which were reminiscent of those seen in histologic section. Tumor cells in two anaplastic astrocytomas also showed moderately pleomorphic nuclei and abundant cytoplasm with irregular borders. The aspirates from the glioblastoma multiforme revealed that there were anaplastic tumor cells with marked pleomorphic nuclei and plentiful cytoplasm in the background of necrosis. The aspirates from malignant ependymoma were highly cellular. Tumor cells were rather uniform and had round, hyperchromatic nuclei and abundant cytoplasm with indistinct borders. Tumor cells of one benign neurogenic tumor seen in cytology showed quite different features from those seen in histologic section. They had large, pleomorphic nuclei and spindle-shaped cytoplasm with complex processes. It was consistent with malignant cells. However, histologic sections revealed that cells were focally, mildly pleomorphic without necrosis. Most cells were bland looking. The histologic findings were consistent with a benign spindle cell tumor.

Cytologic features of the CNS neoplasms were quite similar to those of histology except one spindle cell tumor. Reviewing various CNS neoplasms, it appears that, cytology may be an important diagnostic method as frozen or routine histologic sections.