Except for cutaneous fibromas, few neoplasms have been reported in white-tailed deer (*Odocoileus virginianus*). Tumors of the nervous system of this species are especially rare. Two ependymomas [4, 5], two astrocytomas, [3, 4] and one mixed primitive neuroectodermal and rhabdomyoblastic tumor [2] have been reported.

A 1 1/2-year-old male white-tailed deer was captured by hand because it was incoordinated, circled to the right, staggered backward and had a right head tilt. Examination of the right eye was precluded by periorbital contusions but vision and pupillary response apparently were normal in the left eye and the deer responded to auditory stimuli. Flexor, patellar and facial nerve reflexes seemed normal.

Hematologic examination showed normal packed cell volume, hemoglobin, plasma protein, blood urea nitrogen and creatinine. There was a high leukocyte count (9,159 cells/mm³) with neutrophilia (86% on differential). Serum glutamic oxalacetic and glutamic pyruvic transaminase were 1,010 and 140 milliunits/ml, respectively. Cerebrospinal fluid had an initial pressure of 50 millimeters. Cerebrospinal fluid was colorless, clear and had 32 gm/dl/protein and 1,051 erythrocytes and 4 leukocytes/mm³.

At necropsy there was a space-occupying firm, pale pink mass 3 centimeters in diameter in the left thalamus (fig. 1). Gross lesions of less significance were a fractured left antler pedicel and a mild fibrinous pleuritis and peritonitis attributed to a moderate infection with *Setaria yehi*. The liver looked swollen and was yellow-brown.

Histologic examination of the brain showed a solid, very cellular, infiltrative and destructive neoplasm that practically replaced the left thalamus. The tumor compressed and diffusely infiltrated surrounding structures such as the *capsula interna*, *radiatio thalamica* and left temporal lobe. Medially, the mass merged with the wall of the third ventricle. The center was necrotic, hemorrhagic and congested. The tumor had a uniform cell type that had ill-defined, nonstaining cytoplasm and a medium-sized, slightly oval nucleus with two or three distinct nucleoli. Most cells were arranged randomly but several distinct architectural features were found. In solid areas of the tumor, there were a few rosettes that were formed by
the tumor cell nuclei peripherally arranged around a slightly eosinophilic mass of cytoplasm. Many times there were perivascular arrangements of such cells, and a space between tumor tissue and vessel wall. Often these cells assumed a parallel arrangement and resembled columnar epithelium (fig. 2). In other areas there were numerous clusters of cyst-like structures that had sharply defined internal borders lined with flat tumor cells. There were multiple metastases throughout the ventricular system and meninges.

The neoplasm was diagnosed as an ependymoma because the tumor was close to the third ventricle wall, there were multiple metastases along cerebrospinal fluid pathways, there were perivascular pallisades of tumor cells, there were multiple cyst-like structures indicative of the neuroepithelioid character of the cells, and tumor cell rosettes were found in solid regions of the mass.

Although we feel our findings satisfy the requirements for a diagnosis of ependymoma, there were some inconsistencies. First, the tumor does not have the general appearance of a classical ependymoma as seen in man [6] or dogs [1]. A large percentage of neuroectodermal tumors in animals (especially large animals), however, does not fit the existing classifications based on morphologic criteria [1]. A second inconsistency was that we were unable to demonstrate unequivocal cilia and blepharoblasts in tumor cells. These features often are difficult to identify [6].

This tumor probably is the first ependymoma in periventricular tissue reported in white-tailed deer. The growths described in previous accounts [4, 5] apparently were restricted to the ventricles and somewhat resembled choroid plexus papillomas.
Fig. 2: Perivascular arrangement of tumor cells resembles ependymal epithelium. HE.

References


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