A 26-mo-old female Crl:CD-1®(ICR)BR mouse in good general health was euthanized at the end of a study. At necropsy, a single cyst 5 mm in diameter was found in the left ovary, and multiple 2–4-mm cysts were seen in the endometrium. No gross abnormalities were detected in the brain or pituitary. All organs were fixed in 10% neutral buffered formalin, processed routinely, embedded in paraffin, sectioned at approximately 5 μm, and stained with hematoxylin and eosin. Sections of pituitary were later stained with phosphotungstic acid hematoxylin stain and for glial fibrillary acidic protein (GFAP) using rabbit polyclonal anti-GFAP (Zymed Laboratories, Inc., South San Francisco, CA) as a primary antibody and the avidin-biotin peroxidase method.

Microscopically, an unencapsulated mass replaced the pars nervosa of the pituitary and infiltrated laterally along the dorsal and ventral surfaces of the pituitary and into the pars intermedia (Fig. 1). Closely packed small cells arranged in sheets had inapparent cytoplasmic borders; elongated, irregular nuclei; and eosinophilic, foamy to vacuolated cytoplasm (Fig. 2). Neoplastic cells surrounded several hypocellular, eosinophilic foci up to 100 μm wide that resembled normal neuropil. Nuclei measured approximately 10–15 μm in length, had stippled to finely granular chromatin, and contained 1 to 3 small nucleoli. Nuclei occasionally were indented, flattened, or angular. In some areas, there was nuclear palisading. Mitotic activity was not observed. In some clusters of neoplastic cells, tangled filamentous structures that stained positively for GFAP were present between nuclei. Some neoplastic cells contained cytoplasmic granules that stained positively with phosphotungstic acid hematoxylin, but this stain did not demonstrate fibrillar processes typical of astrocytes. The absence of neoplastic tissue in the ventral hypothalamus adjacent to the pituitary stalk indicated that the neoplasm originated in the pituitary. Nerve roots were not observed in histologic sections of the neoplasm. The relatively small size of the neoplasm and the preservation of the pars distalis and most of the pars intermediate suggested that this neoplasm was incidental.

The glial appearance of the neoplasm and its origin within the pars nervosa were compatible with a diagnosis of pituicytoma. Positive staining with antibody to GFAP confirmed the glial origin of this neoplasm. We believe this to be the first report of a pituicytoma in a mouse.
These rare neoplasms have been reported in rats, humans, a dog, and a cat (1–9). Pituicytomas are primary glial neoplasms of the neurohypophysis, and may be indistinguishable histologically from astrocytomas in other locations (1). Carlton described pituicytomas in the rat as unencapsulated, circumscribed, expansile masses of closely packed spindle cells arranged in cords and bundles (1). Pituicytomas of the rat have round to ovoid, basophilic nuclei and indistinct cytoplasm. Foci of mineralization have been reported in pituicytomas of the rat, but mineralization was not observed in our mouse. Pituicytomas typically are positive with the phosphotungstic acid hematoxylin stain, which stains astrocytic processes (1, 9). Pituicytomas in humans and 1 rhesus monkey have been reported to stain positively for GFAP, S-100, and vimentin (2, 3, 7).

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References

Meeting Announcement

Gesellschaft für Toxikologische Pathologie

11th Annual Meeting with Slide Seminar
October 10–11, 1997
Mannheim, Germany
Dorint Hotel/Congress Centrum Mannheim

Demonstration and Discussion of Histopathologic Lesions:
Nineteen cases with emphasis on liver, kidney and nervous system

Keynote Lecturers—Cell Proliferation and Carcinogenesis in Liver and Kidney:
Dr. K. Küttler, BASF AG, Ludwigshafen Initiation and Promotion Methodology
Dr. R. Bahnemann, BASF AG, Ludwigshafen BrdU and PCNA Methodology
Dr. T. L. Goldsworthy, CIIT, USA Liver and BrdU (English presentation)
Prof. D. Dietrich, University of Konstanz Kidney and PCNA

Language of the meeting is German.

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