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CARCINOMA IN THE URINARY BLADDER OF A WHITE-TAILED DEER (*ODOCOILEUS VIRGINIANUS*)[□]

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Urinary bladder carcinomas are infrequent neoplasms of domestic animals (Moulton, 1978, *Tumors of Domestic Animals*, University of California Press, Berkeley, California, 465 pp.; Pamukcu, 1974, Bull. W.H.O. 50: 43-52), and their occurrence has been linked to several different chemical carcinogens. This paper is the first report of a urinary bladder carcinoma in a white-tailed deer.

An adult, piebald, white-tailed deer doe was found dead near a feeding station in the Town of Webb, Herkimer County, New York. The animal had been observed in the area for 7 yr and appeared moribund several days before its death.

A large (9 × 6 cm), yellowish-white lobulated mass was found in the wall of the urinary bladder (Fig. 1). The surface of the tumor had a nodular appearance with areas of necrosis. The bladder contained bloody urine with a sharp, acrid odor. Bilateral hydroureter and bilateral mild hydronephrosis were present. The pelvic lymph nodes were enlarged and also had a yellowish-white color. No other gross evidence of metastases was observed.

The bladder wall revealed two distinct lesions, an invasive poorly differentiated carcinoma, and a severe chronic lymphocytic cystitis. The cystitis was



FIGURE 1. Tumorous bladder wall showing nodular appearance on cut surface.

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characterized by a uniform population of lymphocytes with round dense nuclei and narrow rim of cytoplasm arranged in clusters and sheets between fibrous septa and smooth muscle cells of the bladder wall (Fig. 2). The carcinoma consisted of

large epithelial cells with prominent nuclei, distinct nucleoli, and a faintly granular eosinophilic cytoplasm, arranged singly or in small groups in the fibrous connective tissue of the submucosa and muscularis (Fig. 3). There

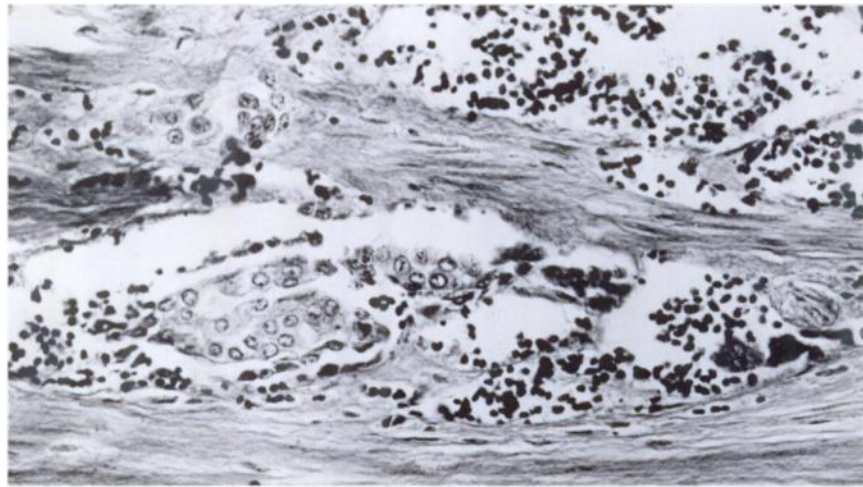


FIGURE 2. Loose sheets of tumor cells between inflammatory lymphocytes and muscle fibers. H&E $\times 128$.

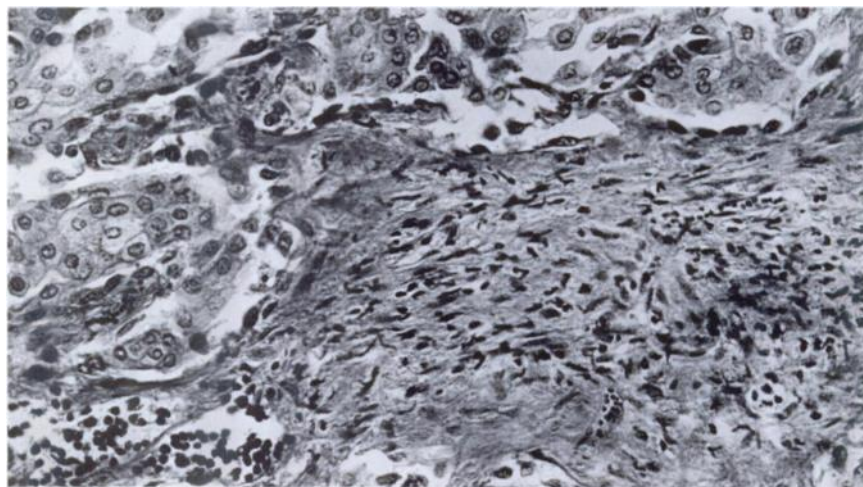


FIGURE 3. Foci of neoplastic cells arranged along band of dense fibrous tissue of bladder wall. H&E $\times 320$.

was no evidence of invasion into sub-mucosal blood vessels.

Poorly differentiated carcinomas are rare urinary bladder neoplasms that are too poorly differentiated to be placed in the common categories of transitional cell adenocarcinomas and squamous cell carcinomas (Mostofi, 1973, International Histologic Classification of Tumours. No. 10. Histologic Typing of Urinary Bladder Tumours. World Health Organization, Geneva, Switzerland, 31 pp.; Pamukcu, op. cit.). Little is known

about their biologic behavior in animals, due to their rarity and difficulty in classification.

Urinary bladder neoplasms in cattle, particularly carcinomas, have been associated with certain carcinogenic agents, such as bracken fern, (Moulton, op. cit.). The presence of a bladder carcinoma in a wild ungulate may point to the presence of either man-made environmental carcinogens or to carcinogenic plant materials.

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