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METASTASIZING RENAL ADENOCARCINOMA IN A MOOSE

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Abstract: A renal adenocarcinoma with metastases to the liver and the lungs is described in a moose (*Alces alces*).

INTRODUCTION

Tumours originating in the kidneys infrequently are found in domestic animals.³ Renal carcinomas have been reported in cattle, sheep and pigs^{1,4} and seem to be most frequent in dogs.⁵ There is no report available on their occurrence in wild ruminants.

GROSS PATHOLOGY

An aged, barren moose cow (*Alces alces*), shot during the regular hunting season was in an inadequate nutritional condition. In the right renal area an oval multinodular neoplasm (30 cm × 15 cm) had completely replaced the right kidney and adrenal gland and a tumour outgrowth had penetrated the caudal caval vein. The cut surface revealed a partly lobular pattern of greyish-white tissues with areas of necrosis and haemorrhage. The tumour was surrounded by a thin fibrous capsule dorsally attached to the parietal peritoneum. Two greyish-white nodules, each measuring about 1 cm in diameter, were found in the liver. Similar nodules measuring up to 2 cm in diameter were disseminated in all lobes of the lungs.

MICROSCOPIC PATHOLOGY

The neoplastic tissue in both the kidney, liver and lung consisted of groups of cells growing essentially in an

alveolar or tubulo-alveolar pattern, separated by strands of fibrous tissue (Fig. 1). The tumour cells varied in appearance from columnar, with basal nuclei, to cuboidal or rounded, with centrally situated nuclei (Fig. 2). The cytoplasm was mostly acidophilic, but groups of cells with a clear cytoplasm were also observed. Most nuclei stained dark, and some nuclei were vesicular with prominent nucleoli. Mitotic figures were rare. A minute amount of intracytoplasmic neutral lipids was found in Oil Red staining. Some PAS-positive substance was observed on the luminal border of the neoplastic cells.

DISCUSSION

Renal adenocarcinoma arises from the proximal convoluted tubular epithelial cells.² The neoplasm described in this report shows a morphologic picture similar to renal carcinomas reported in other species.^{1,4,5} Although groups of cells with clear cytoplasm were found, the neoplasm was not identical to the clear cell carcinoma.⁶ The pattern of metastasis is similar to renal carcinoma in domestic animals.⁵ There is a direct relationship between tumour size, the tendency for vascular invasion,⁶ and the frequency of metastasis,² all features seen in the present case. As judged from the nutritional state, the metastasizing carcinoma has had some clinical impact on the animal.

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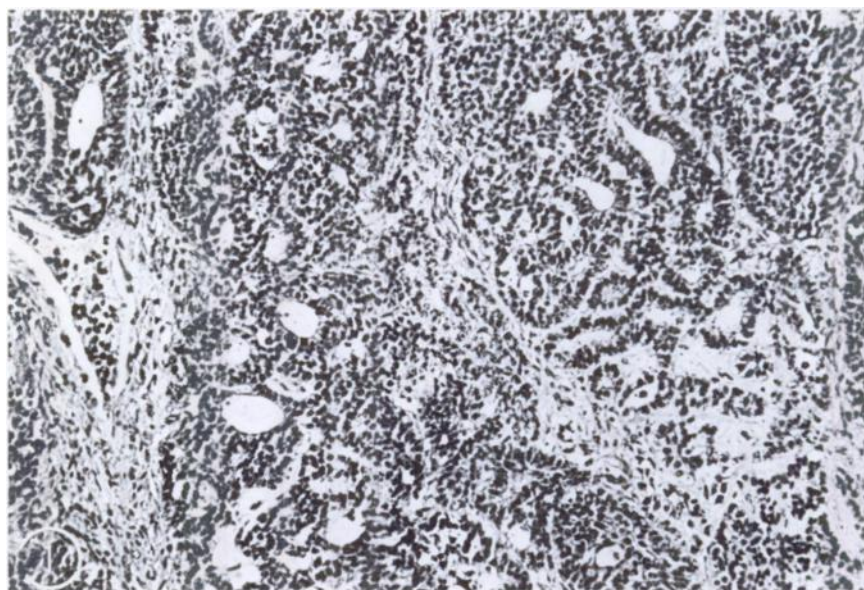


FIGURE 1. Primary tumour. Essentially alveolar and tubulo-alveolar growth of neoplastic cells. HE $\times 68$.

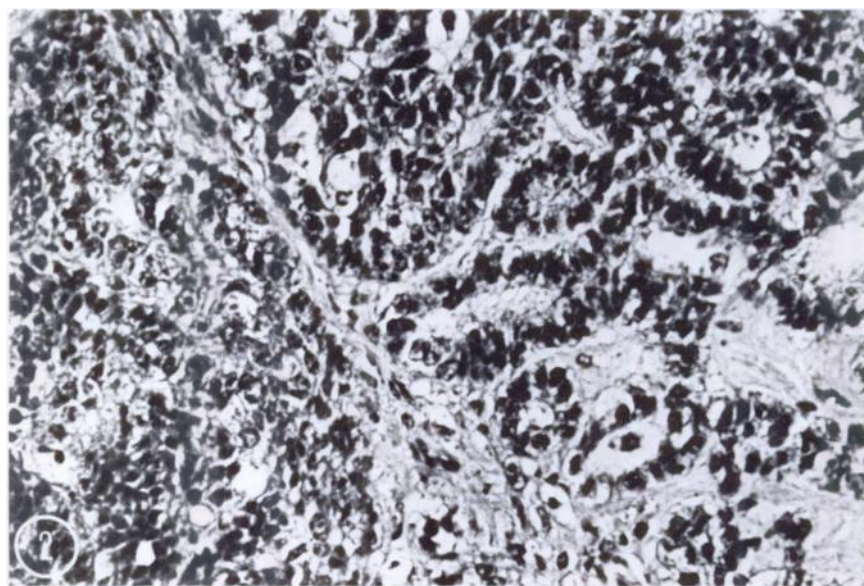


FIGURE 2. Detail of Figure 1. Columnar cells with basal nuclei and prominent nucleoli. Some of the cells display clear cytoplasm. HE $\times 170$.

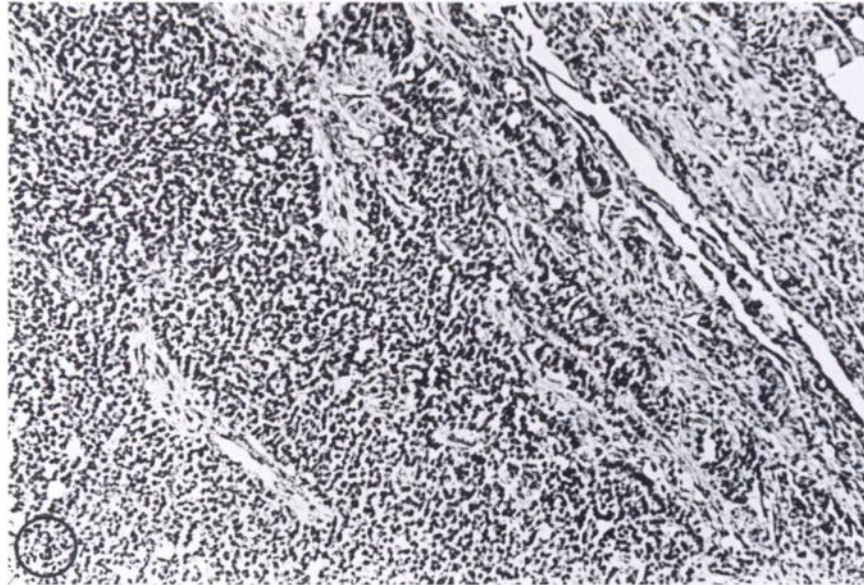


FIGURE 3. Metastasis, lung. Tubulo-alveolar and solid growth of neoplastic cells. HE \times 30.

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