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Case Report

Uterine tube adenoma in a bitch

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Abstract

An adenoma of the uterine tube in a 14-year-old, mixed breed, female dog with history of abdominal distention is described. Ultrasonographic examination revealed a 15 x 20 cm anechoic mass in the left caudal region of the abdominal cavity. Laparotomy was performed and the mass, within the left ovarian bursa, was surgically excised by ovariohysterectomy. Grossly, the left ovarian bursa was markedly increased in size (7 x 15 x 20 cm) and contained approximately 300ml of serosanguineous fluid that surrounded a 5 x 13 x 17 cm in diameter, red, papilliform, and soft mass. Histologically, the mass was characterized as an epithelial neoplastic proliferation arranged in a papilliform pattern. The numerous papillae were lined by a single layer of well-differentiated columnar ciliated cells, with occasional cuboidal cells, and supported by a dense fibrovascular stroma. Columnar cells contained abundant, slightly vacuolated and granular cytoplasm. The granules were located predominantly in the apical surface and were Alcian blue and periodic acid-Schiff positive. Nuclei were round and polarized in the apical surface of the cell. Neoplastic cells were positive for pan-cytokeratin and vimentin. The diagnosis of adenoma of uterine tube was based on the anatomic location, and histological, immunohistochemical and ultrastructural findings.

Key words: neoplasms, dogs, female reproductive system, adenoma, pathology

Introduction

Uterine tubes are tortuous tubular structures located at the cranial portion of the broad ligament of the uterus, and establishes the direct contact between the ovary and uterus (9). Epithelial and mesenchymal neoplasms of the uterine tube, mainly from the fimbria, are rare in domestic animals, with exception of chicken. The rare reports of benign epithelial neoplasms of the uterine tube in dogs include adenomas (4, 7, 8) fibroadenomas, adenomyoma (4) and adenomatous papilloma (10). A common nomenclature has been proposed to classify all of these types of neoplasms of uterine tube as adenomas (6). The malignant counterpart of the epithelial neoplasms of uterine tube is recognized as tubular adenocarcinomas (4). Among the mesenchymal neoplasms of this organ, hamartomas (3), lipomas (4) and leiomiomas (11) have been described and are, apparently, less frequent than epithelial neoplasms (4). Due to the scarcity of reports of these neoplasms in domestic animals, this study aim was to describe the clinicopathological, immunohistochemical and ultrastructural aspects of an uterine tube adenoma in a bitch.

Case report

A 14-year-old, mixed breed, female dog, with clinical history of acute abdominal enlargement was submitted to the Hospital Veterinário Universitário (HVU) of the Universidade Federal de Santa Maria (UFSM).

According to the owner, the dog presented regular estrus cycles but never had a full term pregnancy. On clinical examination, the animal presented good body condition, pink oral and vaginal mucosa, and normal body temperature. On the ultrasonographic examination, a 15 x 20 cm anechoic mass was observed in the left caudal portion of the abdominal cavity. After the diagnosis, laparotomy followed by an ovariohysterectomy were performed and the mass was completely removed. The mass was well circumscribed and surrounded by the ovarian bursa. All organs removed during the ovariohysterectomy were submitted for the histopathological analysis, where they were fixed in 10% formaldehyde and processed routinely. Immunohistochemistry was performed based on the streptavidin-biotin-peroxidase method using primary antibodies for pancytokeratin (polyclonal, dilution 1:1000) and vimentin (monoclonal, dilution 1:1000) (Dako Cytomation, Carpinteria, California, 93013, USA). Counterstaining was performed with Harris hematoxylin and Alcian blue. For the negative control, the primary antibodies were replaced by PBS. For transmission electron microscopy tissues were fixed in 2.5% glutaraldehyde in 0.1 M phosphate buffer for 60 min. After that, samples were washed five times with 7% sucrose and postfixed with 1% OsO_4 in phosphate buffer for 90 min. The tissues were then embedded in resin and ultrathin sections were cut and stained with 2% uranyl acetate and 0.2% lead citrate.

Grossly, the ovarian bursa was markedly enlarged (7 x 15 x 20 cm) (Fig. 1) and contained approximately 300 ml of sanguineous fluid and a 5 x 13 x 17 cm, red and papiliform mass (Fig. 2). On the cut surface, multiple papilliform projections extended from the uterine tube towards the ovarian bursa. These projections were formed by whitish and firm stroma covered by a thick layer (0.5-0.8 cm in thickness) of reddened and soft neoplastic tissue (Fig. 3). On the craniolateral portion of the mass was a small (2 x 3 x 3 cm) and greenish area. On the cut surface, this area was soft and yellowish with greenish borders (necrotic tissue). The left ovary was not found and was most likely compressed and replaced by the mass. There were no alterations on the right ovary and uterus.

Figure 1. Uterine tube adenoma. The left ovarian bursa is markedly increased in size (7 x 15 x 20 cm).

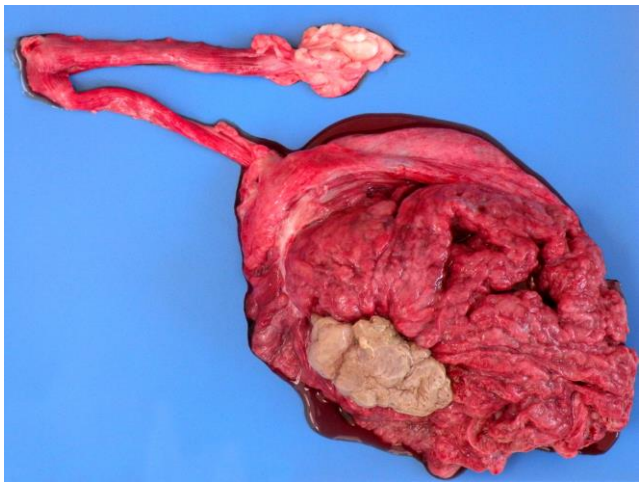

Figure 2. Uterine tube adenoma. After the opening of the ovarian bursa, a 5 x 13 x 17 cm red and papilliform mass is observed.

Figure 3. Uterine tube adenoma. On the cut surface, projections are formed by a thin stroma of whitish and firm tissue covered by a thick layer (0.5-0.8 cm in thickness) of reddened and soft tissue.

Histologically, the neoplasm was composed of epithelial cells forming papilliform structures (Fig. 4). These numerous projections were lined by a single layer of well-differentiated columnar ciliated cells, with occasional cuboidal cells, and supported by a dense fibrovascular stroma. The columnar cells showed abundant finely vacuolated cytoplasm, with citoplasmic granules located mainly on the apical portion of the cells. These granules were evidenced by the Alcian Blue and Periodic Acid of Schiff (PAS) special stains.

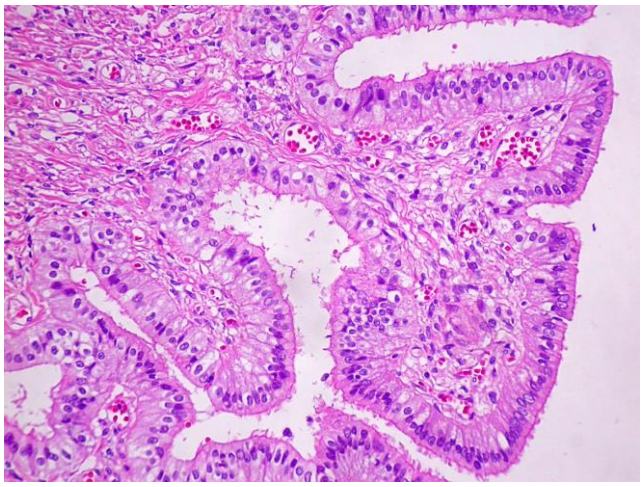

Figure 4. Uterine tube adenoma. The neoplasm is composed by epithelial cells forming papilliform structures. The numerous projections are lined by a single layer of well-differentiated columnar ciliated cells, with occasional cuboidal cells, and supported by a dense fibrovascular stroma. The columnar cells present abundant finely vacuolated cytoplasm with granules, located mainly on the apical surface of the cells. HE, obj. 20x.

The epithelial neoplastic cells showed positive immunoreactivity to cytokeratin (Fig. 5), as well as, to vimentin, predominately close to the plasma membrane of these cells. The fibrovascular stroma also showed positive immunoreactivity for vimentin, in this case, throughout the cytoplasm of the cells (Fig. 6). Ultrastructurally, the apical surface of these cells contained cilia characterized as multiple cylindrical structures, surrounded by a thin membrane, containing paired microtublues in a concentrical arrangement (Fig. 7).

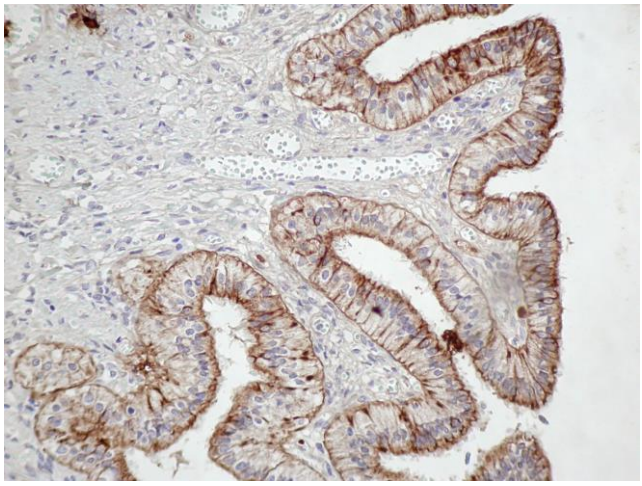

Figure 5. Uterine tube adenoma. Positive immunoreactivity of the neoplasic epithelial cells to pancytokeratin, obj. 20x.

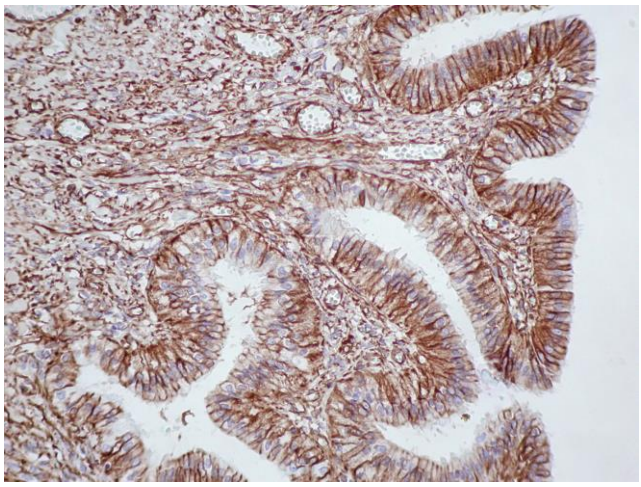

Figure 6. Uterine tube adenoma. Positive immunoreactivity of the neoplasic epitelial cells to vimentin. Observe the positive immunorreactivity of the stromal cells to the same antibody, obj. 20x.

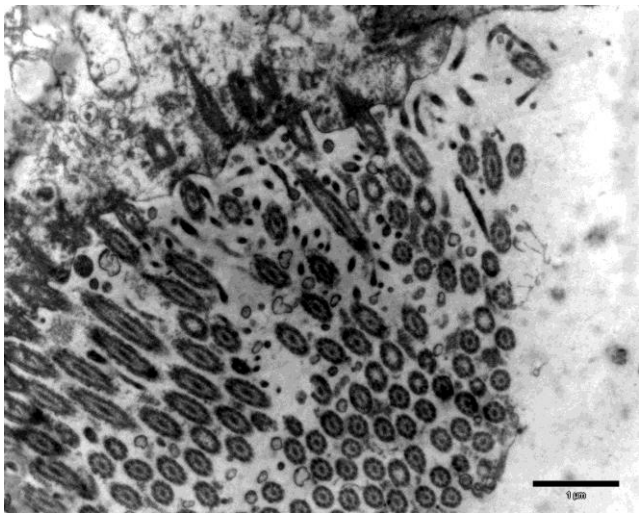

Figure 7. Uterine tube adenoma. Transmission Eletron microscopy. The apical surface of the epithelial neoplastic cells contain cilia characterized as cylindrical structures, surrounded by a membrane, and containing paired microtublues in a concentrical arrangement. Bar = 1 µm.

Discussion

Dogs with uterine tube neoplasms usually have no major clinical signs related to the neoplasm (7) and present, more commonly, regular estrus cycles (11), as reported in this dog. When described, clinical signs include ascites, due to compression viscera, blood and lymphatic vessels (8), sanguineous vulvar secretion (11) and irregular estrus cycles (10), although, any of these signs were observed in this case. The only clinical sign observed was abdominal dilation.

The neoplasm described here was an enlarged papilliform mass, surrounded by the ovarian bursa, which occupied a wide portion of the abdominal cavity. Reports

of uterine tube adenomas usually describe neoplasms with large dimensions (8) and papilliform aspect, especially those originated from the infundibulum. Some uterine tube adenomas were also observed within the ovarian bursa (4, 7, 8, 10). These macroscopic characteristics, even though nonspecific, can be useful for the clinical and macroscopic diagnosis of these neoplasms.

The observation of ciliated epithelium on the histopathological and ultrastructural analysis were definitive to the diagnosis of this neoplasm, once this epithelium is unique when compared to other structures of the organs that constitute the female reproductive system (5).

In this case, the immunoreactivity of the epithelial cells to cytokeratin and vimentin was observed. This double immunoreactivity was already demonstrated in epithelial cells of normal uterine tubes (1) where the reaction to vimentin, was close to the plasma membrane and observed specially at the base of the cells, as observed in this case. Cytoplasmic reaction was observed only in non-ciliated columnar cells of normal uterine tubes (1). The immunoreactivity of pleomorphic cells of tubular structures to vimentin was also described in a case of a uterine tube in a rabbit, suggesting that these were obtaining features of interstitial cell (2).

The main differential diagnosis of uterine tube adenomas are the uterine tube adenocarcinomas. Even though the histological differentiation of these two neoplasms can be challenging, the implantation of the malignant neoplasms in other organs, especially in the peritoneal cavity, is considered the main diagnostic criteria. This way, neoplasm with implantations are always called adenocarcinomas (4)

The diagnosis of uterine tube adenomas in this case was based on the location, macroscopic, histological, immunohistochemical and ultrastructural aspects of the neoplasm. The morphological characteristic of the neoplasms and the occurrence of implantations in adjacent organs should be always considered on the differential diagnosis to uterine tube adenocarcinomas.

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