



Case Report

Uterine Adenocarcinoma in a Rabbit

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ABSTRACT

On necropsy of a 24 months age Dutch female rabbit the uterine horns seems enlarged with a nodular appearance. On the cut surface of the uterus as well as heart wall, white firm masses with a cauliflower-like surface was observed. No other important gross lesions were found in other organs. In histopathological examination of the uterus typical microscopic changes were those of adenocarcinoma. No metastases except in heart wall were found in lung, spleen and liver. In the heart most of the myocardial cells were replaced by tumor masses and the remainder were degenerative. Microscopic features of the metastases in the heart wall were similar to the primary neoplasm.

Keywords: Rabbit, Uterine, Adenocarcinoma

INTRODUCTION

Uterine adenocarcinoma is the most commonly spontaneous neoplasm occurring in European rabbit, *Oryctolagus cuniculus*, (Quesenberry & Carpenter 2004, Percy & Barthold 2001, Manning *et al* 1994, Durfee *et al* 1999). Age is the most important factor in the development of adenocarcinoma. Rabbits that are older than 4 years of age have an incidence of 50% to 80% (Quesenberry & Carpenter 2004, Manning *et al* 1994, Baba & Von ham 1972) and occurrence is independent of breeding history

(Quesenberry & Carpenter 2004, Percy & Barthold 2001). The incidence of this tumor in commercial rabbitries and research facilities is relatively low. This is due to the fact that these animals are usually relatively young (Percy & Barthold 2001). Uterine adenocarcinoma was not found in the Belgian or Rex breeds but occurred in other breeds like as Tan, Dutch and French Silver (Quesenberry & Carpenter 2004, Manning *et al* 1994). Female breeder rabbits with adenocarcinoma of the uterus invariably have a case history of reproductive disturbance prior to detection of the tumor (Quesenberry & Carpenter 2004, Manning *et al* 1994). The duration in time between clinical detection and death from metastasis averaged 12-24 months (Percy & Barthold 2001).

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CASE HISTORY

Carcass of a 24 months age Dutch female rabbit submitted to the department of Pathology at Razi vaccine and serum research institute in Karaj, for determining the cause of death. The animal showed the signs of depression and anorexia before death. On gross examination the uterine horns seems enlarged with a nodular appearance. On the cut surface of the uterus as well as heart wall, white firm masses with a cauliflower-like surface was observed (Figure 1).

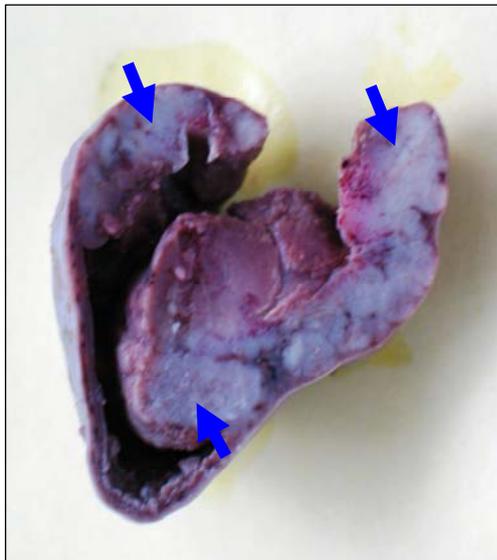


Figure 1. Rabbit heart, white masses (arrows) are metastasis of uterine adenocarcinoma in myocardium.

No other gross lesions except some congestion of lung, liver and spleen, as well as foci of metastases, implants, were found in other organs. Samples of different tissues consisted of uterus, lung, heart, liver; spleen were taken and kept in 10% formalin solution until fixation was completed. Tissues were routinely processed to paraffin blocks, sectioned at 5 μ m, deparaffinized, stained with H&E and finally examined by a light microscope.

In histopathological examination of the uterus typical microscopic changes were those of adenocarcinoma that was a fine and irregular papillary pattern with cellular budding that forming

acinar and tubular structures, increase of the vascular and myxoid stroma, nuclear pleomorphism, and irregular gland spaces. Moreover, large areas of necrosis and few mitotic figures were observed and tumor invaded toward the underlying layers. No metastases except in heart wall were found in lung and liver. In the heart most of the myocardial cells were replaced by tumor masses and the remainder were degenerative. Microscopic features of the metastases in the heart wall were similar to the primary neoplasm (Figure2).

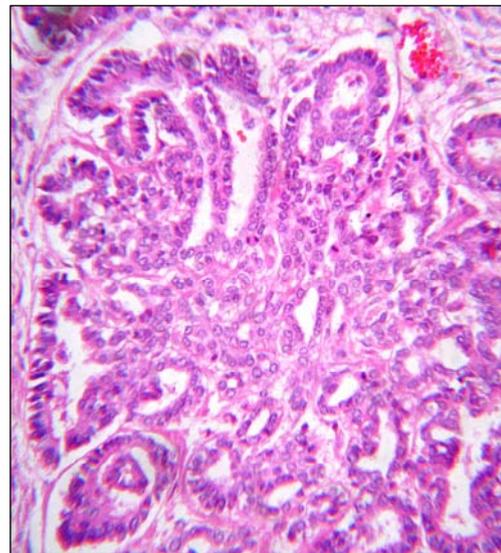


Figure 2. Metastasis of uterine adenocarcinoma in the heart of rabbit, acinar and tubular structures lined by anaplastic epithelial cells. (H&E \times 200).

DISCUSSION

With increasing the age of female rabbits the endometrium undergoes progressive changes, a decrease in cellularity, and an increase in collagen content. These changes are associated with the development of uterine cancer (Quesenberry & Carpenter 2004). Adenocarcinoma of the uterus is a slowly developing tumor. Local invasion of the myometrium occurs early and may extent through the uterine wall to adjacent structures in peritoneal cavity; hematogenous metastasis to the lung, liver,

and sometimes brain and bones may occur within 1 to 2 years (Quesenberry & Carpenter 2004, Manning et al 1994).

In present study two points were remarkable; first the site of metastasis, heart, without involvement of other organs and secondly the age of animal was two years. Based on the study, the incidence of uterine adenocarcinoma in does 2-3 years of age was around 4% (Percy & Barthold 2001). Adenomyosis and endometriosis are two important lesions only in primates. Adenomyosis is the presence of nests of endometrium within the myometrium. However, endometriosis is the presence of endometrial glands or stroma in locations outside the uterus, such as the ovary, the mesometrium, the peritoneum, and, peritoneal surgical scars (Acland 2001, Jubb et al 1985). This lesion, endometriosis, leaves viable tissue which is subjected to the effect of various hormones and has no outlet for its secretions. This may results in accumulation of secretions, possibly toxemia (Jones & Hunt 1983). Although it was mentioned that pulmonary involvement, metastasis, carries a serious prognosis (Percy 2001). But, in present study heart insufficiency, by increasing tumor masses of at the expense of the normal myo-

cardial cells, probably, caused the death of animal.

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