Pyrex Journal of Medicine and Medical Sciences

Vol 6 (1) pp. 6-8 February, 2019
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http://www.pyrexjournals.org/pjmms
ISSN: 2579-1230

Case Report

Vaginal Leiomyosarcoma in Holstein-Friesian Heifer

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Accepted 13th, February 2019

Abstract

A two-year Holstein-Friesian heifer was admitted to the Vet Clinic, Faculty of Veterinary Medicine Zagazig University. Clinical examination revealed a two tumor like pedunculated poorly demarcated masses that attached to the vaginal wall and partly protruded through the vagina. Two masses were surgically removed with some of the surrounding tissue. The dimensions of the masses were 5.2×3×2.5 and 3×2×1cm respectively. Macroscopically, well circumscribed with lobulated patterns, white creamy color with firm consistency and ulcerative surfaces were noticed. Microscopically, pleomorphic tumor cells (spindle to oval) that embedded in amorphous fibrillar stroma forming interlacing bundles were prominent. The neoplastic cells showed cigar-shaped large vesicular nuclei with karyomegaly and granular chromatin beside multinucleated giant cell formation. The mitotic indices were prominent. The neoplasm showed positive immunohistochemically for smooth muscle actin. The previous data declared of well differentiated non metastasis liomyosarcoma.

Keywords: Neoplasm, vaginal, immunohistochemistry, heifer.

INTRODUCTION

Reported neoplasms of female reproductive tract leiomyosarcomas are quite rare tumors in the ruminant (Cooper and Valentine 2002). Also, genital system tumors were rarely observed in cows. It was estimated that 10-50% of such tumors originated from smooth muscles and, among them, approximately 10% were considered malignant. Tumors of the genital tract in cattle have been reported from different countries of the world (Hamdi *et al.,* 2010 and Saut *et al.,* 2013). However, reports on heifer leiomyosarcomas compared with other tumors were also very rare (Yeruham *et al.,* 1999). Vaginal leiomyosarcoma, fibroma, fibropapilloma, rhabdomyoma, and leiomyoma were reported previously (Sohrabi 1991). Leiomyosarcomas exhibited low malignancy with slow invasion and rare metastasis in cows (Hossein *et al.,* 2009).

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Vaginal leiomyosarcoma was described in a 4 year old Holstein cow as encapsulated and poorly demarcated masses, with variable cellularity ranging from densely packed spindle cells arranged in interwoven short fascicles to loosely spaced spindle cells separated by amorphous matrix. Cells displayed eosinophilic cytoplasm with occasional small clear cytoplasmic vacuoles and a moderately large central cigar-shaped nucleus containing finely stippled chromatin. There was moderate to marked nuclear atypia, with frequent karyomegaly. The neoplastic cells were positive for a smooth muscle actin (Sinem *et al.,* 2011).

Hamdi *et al.,* (2010) reported fibroleiomyosarcoma of the vagina in a 4-year-old Holstein-Friesian cow which measured 6.5×5×4.2 cm in size, weighed 87.73g, and well demarcated, non-encapsulated and protruded from the vulva. Histologically, composed of smooth muscle and fibrous tissue components with spindle-shaped cells have eosinophilic fibrillary cytoplasm was observed. Saut *et al.,* (2013) recorded that vaginal leiomyosarcoma in a

12-year old, cow from Brazil which have a large ulcerative neoplastic growth that originated between the base and the left-lateral vaginal wall. Histologically, muscle-like cells that demonstrated cellular pleomorphism, anisokaryosis, prominent and multiple nucleoli with rare tumor giant cells. The neoplastic growth invaded the adjacent adipose tissue, and contained areas of hemorrhage with discrete accumulations of inflammatory cells. Immune-reactivity for the actin filaments was noticed. The purpose of our case record was to describe the gross and histopatholoical findings and surgical management of a vaginal leiomyosarcomas in a Holstein-Friesian heifer.

CASE HISTORY

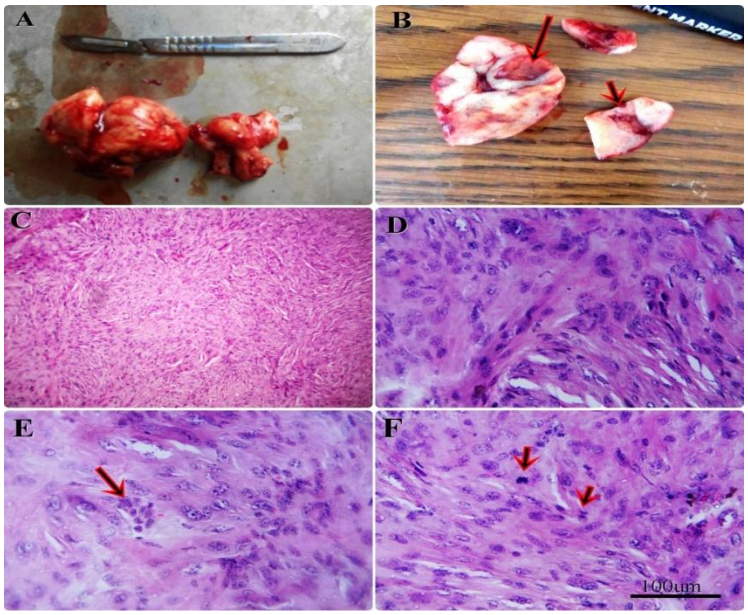
A two-year Holstein-Friesian Heifer was admitted to the Vet Clinic Department of Surgery Anesthesiology and Radiology, Faculty of Veterinary Medicine Zagazig University. According to the owner, the animal had vaginal masses with ulceration on its surfaces that caused vaginal prolapse only when the animal lay down with frequent sanguineous discharge from the vagina. There was no any change in the animal appetite. Clinical examination revealed no other abnormalities with rectal temperature (38.4 Cº). The heifer was clinically examined by rectal palpation and introducing a vaginal speculum. A tow round, firm tumor-like pedunculated masses were attached to the vaginal wall and partly protruded through the vagina and no lesions were found in the remained genital tracts of the heifer.

The animal was scheduled for surgical excision later at the same day. A caudal epidural anesthesia was preferred in this case using a local anesthetic agent. For histologic evaluation, specimens were taken from the masses and then fixed in 10% neutral buffered formalin solution, dehydrated in ascending concentrations of ethanol (70-100%), cleared in xylene, and finally embedded in paraffin. Five-micron thick paraffin sections were prepared and then routinely stained with hematoxylin and eosin and examined microscopically. Additionally, immunohistochemical staining of prepared paraffin section for actin was done according to the method of Suvarna *et al.,* (2013).

RESULTS AND DISCUSSION

On gross examination, the resected two masses were poorly demarcated and non-encapsulated. It measured 5.2×3×2.5 and 3×2×1cm respectively. The masses were relatively pedunculated, lobulated with ulcerated surface. The cut section was white creamy, with an obvious interwoven fascicular pattern. There were cleared foci of necrosis and hemorrhagic (Fig.1 A, B). Similar gross picture was recorded by (Saut *et al.,* 2013 and Hamdi *et al.,* 2010). Microscopically, the mass revealed pleomorphic cells (spindle to oval) embedded in amorphous eosinophilic ill-distinct fibrillare stroma (Fig.1 C, D). The tumour cells had indistinguishable cytoplasmic borders and prominent cigar-shaped large vesicular and hyperchromatic nucleoli. Tumor cells were arranged in an interlacing bundle with intervening extravasated erythrocytes or numerous well developed capillaries.

The majorities of nuclei were elongated or oval shapes and contained numerous basophilic scattered chromatins. The cell boundaries were ill-defined. Typical and atypical mitotic figures and multinucleated tumor giant cells were prominent (Fig.1 E, F). Similar histopathological picture was recorded by (Saut *et al.,* 2013 and Sinem *et al., 2011*). Immunohistochemical diagnosis of smooth muscle actin was positive (Fig. 2 A, B). Similar diagnostic immune-reactive picture was recorded by (Sinem *et al.,* 2011). Moreover, necrotic debris and inflammatory cells infiltrations were common in the examined tissues. On the basis of the site, biological behavior, macroscopic and microscopic characteristics, the masses were diagnosed as a well differentiated leiomyosarcoma.



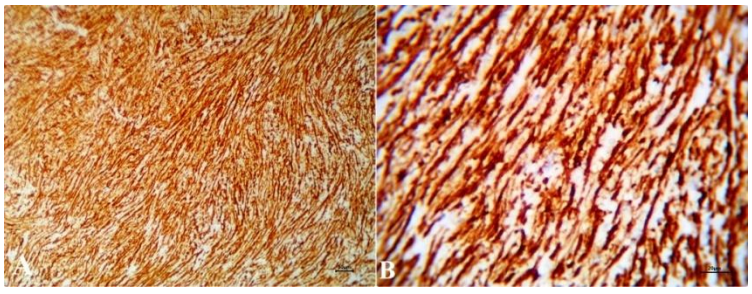


Fig. 1: A) Excised vaginal masses showing white creamy color and bloody necrotic surfaces. B: Cut surfaces showing lobulated firm tumors masses (arrows). C, D: Photomicrograph showing spindle to oval-shaped tumor cells with eosinophilic fibrillar stroma forming interlacing bundles. E: Fascicles and bundles of neoplastic cells and tumor giant cell (arrow). F: Typical and atypical mitotic figures of malignant cells (arrow). H&E stain Scale bare = 100µm. Fig. 2: Microphotograph showing low (A), and high magnifications (B) of immunopositive reactivity smooth muscle actin. Scale bare 50 and 20 µm respectively.

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