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SHORT COMMUNICATION

Pathology of mucometra in a Queen cat

G. Swetha, A. Nasreen[1*], A. Anand Kumar, K. Rajesh[1] and M. Raghunath[1]
[1]Department of Veterinary Clinical Complex, Department of Veterinary Pathology, College of Veterinary Science, Tirupati-517 502, Sri Venkateswara Veterinary University, Andhra Pradesh, India

Address for Correspondence
A. Nasreen, Assistant Professor, Department of Veterinary Clinical Complex, Department of Veterinary Pathology, College of Veterinary Science, Tirupati-517 502, Sri Venkateswara Veterinary University, Andhra Pradesh, India,
E-mail: nashreen7@gmail.com

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ABSTRACT

Mucometra is accumulation of sterile mucoid fluid in the uterine lumen without any significant systemic clinical signs. A queen cat of two years age without any apparent clinical signs was brought to clinical complex for elective spaying. After ovario-hysterectomy, ovarian and uterine tissues were submitted for histopathology. Grossly, uterus was distended with fluid which was slightly cloudy and viscous. Ovary revealed multiple clear cystic structures on the surface. The microscopic examination of the uterine tissue revealed marked edema with few hyperplastic endometrial glands and ovary revealed cystic structures lined by layers of granulosa cells in the cortical region.

Keywords: Follicular cyst, histopathology, mucometra, Queen cat

Queen cats are induced ovulators, but sometimes spontaneous ovulations are also noticed[1]. Mostly, the ovarian changes are non-malignant and do not interfere with fertility of queen, but some hormonal changes may raise concern for queen's overall health and decrease prognosis for future fertility[2]. Ovarian hormones have an impact on the morphological changes that uterus undergoes and results in uterine pathologies such as sub-clinical endometritis, cystic endometrial hyperplasia and mucometra. Mucometra is defined as build-up of sterile fluid in the uterine cavity typically clear to slightly cloudy and can vary in viscosity. This condition occurs sporadically[3] as a result of excessive production of uterine fluid following endometrial hyperplasia, or an obstruction in the uterine lumen, cervix or vagina[4].

Cats are known to frequently develop ovarian cysts, which arise from either mature or degenerating follicles and the occurrence of these cysts tends to increase as they get older[3]. The cysts fail to discharge ova and remain persistent in the ovary, inhibiting the folliculogenesis and is a primary factor contributing to infertility of cats[5]. The most common among them is follicular cyst, which is known to secrete oestrogens[2].

An intact two-year-old queen cat was admitted to the Veterinary clinical complex, College of Veterinary Science, Tirupati for ovariohysterectomy. The queen cat was presented with no apparent clinical signs and the hematological parameters were with in normal range before performing the ovario-hysterectomy. The uterus and ovaries were separated and directed for laboratory for detailed gross and microscopic examination. Tissue samples from uterus and ovaries were processed for histopathological studies by following the standard procedures[6].

On macroscopic examination the uterine horns were bilaterally distended with accumulation of mucoid fluid[3,7]. The lumen of uterine horns revealed, about 50 ml mucoid fluid which was slightly viscous to cloudy and light yellow in colour in accordance with earlier reports[8,9]. There was severe congestion of blood vessels on serosal layer of uterine horns (Fig. 1). The ovaries had a smooth and glistening surface with multiple small size cysts with clear fluid on the surface[2,8,9] (Fig. 2).

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Histopathological examination of uterus revealed decreased endometrium to myometrium ratio and mild hyperplasia of endometrial glands. The endometrial stroma showed diffuse oedema and mild fibroplasia[8,9] (Fig. 3). The glands were dilated and lined by single layer columnar epithelial cells. The cells were showing mild hyperplasia with basal nuclei and few nucleoli[7] (Fig. 4). In the myometrium, stratum vasculature showed great dilation of blood vessels with severe congestion[2]. Ovaries revealed few primordial follicles with follicular cyst in the cortex region. The cyst wall showed more than two layers of granulosa cells, few areas revealed exfoliation of the lining granulosa cells into the cystic lumen[7] (Fig. 5). Diffuse

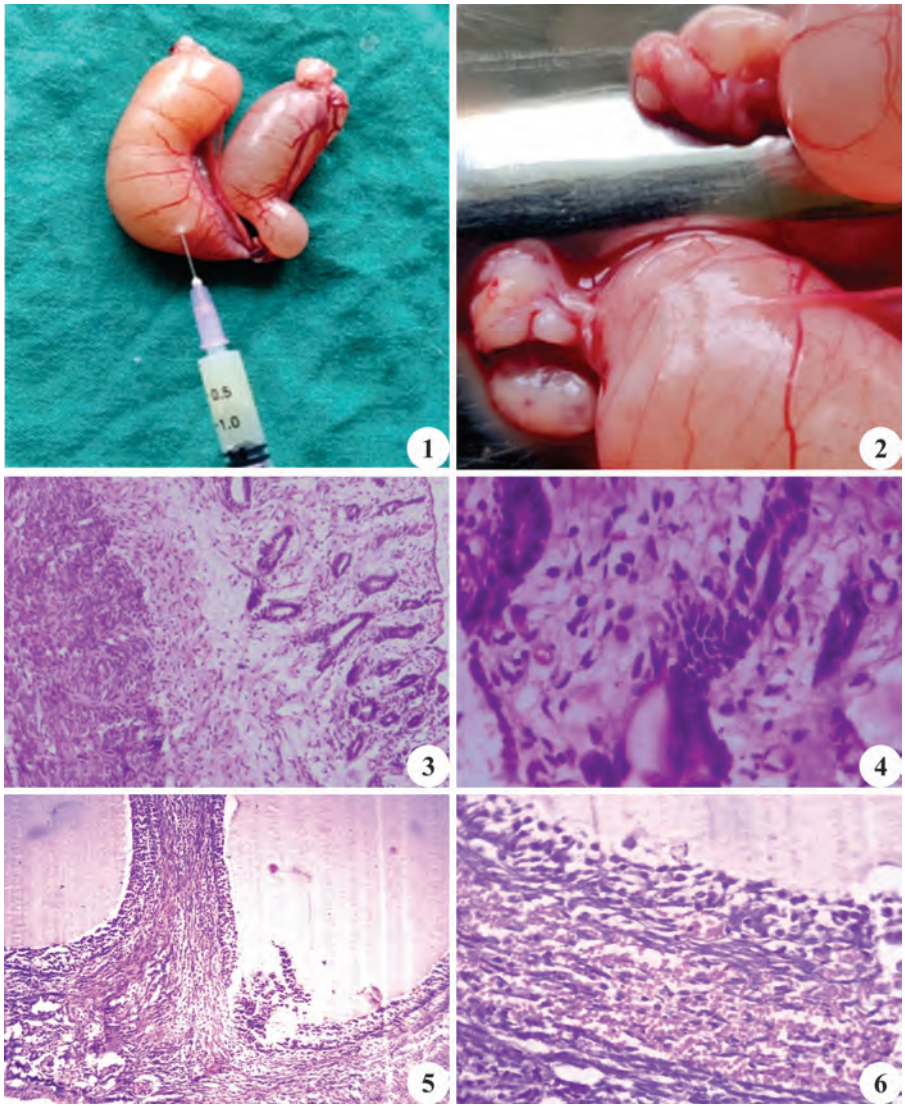

Fig. 1. Mucometra: Symmetrically distended uterine horns with mucoid fluid. Congestion of blood vessels on serosal layer; **Fig. 2.** Follicular cyst: Ovaries showed smooth, glistening surface with multiple cystic structures; **Fig. 3.** Mucometra: Endometrial stroma showed diffuse oedema and fibroplasia with mild increase in glandular structures (H&E X100); **Fig. 4.** Mucometra: Hyperplasia of endometrial glandular epithelial cells and fibroplasia (H&E X400); **Fig. 5.** Follicular cyst, Ovary: Exfoliation of granulosa cells into cystic lumen (H&E X100); **Fig. 6.** Follicular cyst: Diffuse haemorrhages and congestion of blood vessels around the cyst (H&E X400).

haemorrhages and congestion were noticed around the follicular cyst along with mild interstitial endocrinal cell hyperplasia[10] (Fig. 6). Mucometra is usually reported as an incidental finding without any prominent clinical signs[1]. Though the condition is not life threatening it plays a major role in causing infertility in queen cats. Follicular cyst mainly contributes to the development of mucometra through oestrogen stimulation. The chronic stimulation by estrogen causes diffuse accumulation of fluid in the uterus leading to distension of uterine lumen[2]. This is accompanied with endometrial hyperplasia due to progesterone stimulation later aggravated by estrogen finally result in mucometra[11].

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