



# Cystic Endometrial Hyperplasia and Pyometra Complex in a Bitch

Kavisha Gangwar<sup>1</sup>, Brijesh Kumar Yadav<sup>2</sup>, Neeraj Kumar Gangwar<sup>3</sup>, Vikas Sachan<sup>4\*</sup>

<sup>1,3</sup>Department of Veterinary Pathology

<sup>2,4</sup>Department of Veterinary Gynaecology and Obstetrics,

College of Veterinary Science and Animal Husbandry, DUVASU, Mathura 281001 U.P.

## ABSTRACT

A 11 years old German Shepherd bitch with the history of abdominal distension, vomiting, and purulent vaginal discharge was presented to Veterinary Clinical Complex, DUVASU, Mathura. Haematological examination revealed increase in total erythrocyte count and total leucocyte count while decrease in platelet count. The condition was treated with ovariohysterectomy and histopathological examination revealed the condition as cystic endometrial hyperplasia with pyometra complex.

**Keywords:** Bitch, Cystic, Endometrial Hyperplasia, Pyometra.

**How to cite :-** Gangwar, K., Yadav, B. K., Gangwar, N. K., & Sachan, V. (2023). Cystic Endometrial Hyperplasia and Pyometra Complex in a Bitch.

*The Indian Journal of Animal Reproduction*, 44(2), 86–89. 10.48165/ijar.2023.44.02.16

## INTRODUCTION

Cystic Endometrial Hyperplasia (CEH) is a proliferative condition of female reproductive system involving abnormality in growth and repair of glandular epithelium of uterine endometrium and commonly observed in elderly female canines. It mainly involves cystic dilatation of endometrial glands causing abnormal accumulation of fluid in endometrial glands and lumen of uterus (Moxon *et al.*, 2016, Sridevi *et al.*, 2011). The exact pathogenesis of CEH is still unknown but according to current investigations the CEH – Pyometra complex occurs due to

simultaneous influence of hormonal factors as well as infectious stimuli (Wozna-Wysocka *et al.*, 2021). The progesterone hormone is responsible for hyperplasia of endometrium mainly the superficial epithelium, endometrial glands as well as secretory activity of endometrial glands (Agudelo, 2005; Corrada *et al.*, 2006). The hyperplastic endometrium frequently gets inflamed and gets ascending bacterial infection from vagina that ultimately causes severe inflammation of uterus. This further progress into pyometra (filling of uterine lumen with purulent content), responsible for systemic clinical signs (Schlafer and Gifford, 2008).

\*Corresponding author.

E-mail address: [vikas.vet23@gmail.com](mailto:vikas.vet23@gmail.com) (Vikas Sachan)

Received 10-06-2023; Accepted 18-12-2023

Copyright © Journal of Extension Systems ([acspublisher.com/journals/index.php/ijar](http://acspublisher.com/journals/index.php/ijar))

## CASE HISTORY AND OBSERVATIONS

An 11 years old German Shepherd bitch was presented to Veterinary Clinical Complex, DUVASU, Mathura with the history of abdominal distention, anorexia, polydipsia and vomiting with purulent vaginal discharge in last 10 days. There was no history of mating since last 4 years. On USG examination typical pockets of pyometra were found. Haemato-biochemical examination revealed increased total leucocyte count, total erythrocyte count, serum urea and serum creatinine while decrease in platelet count and serum albumin.

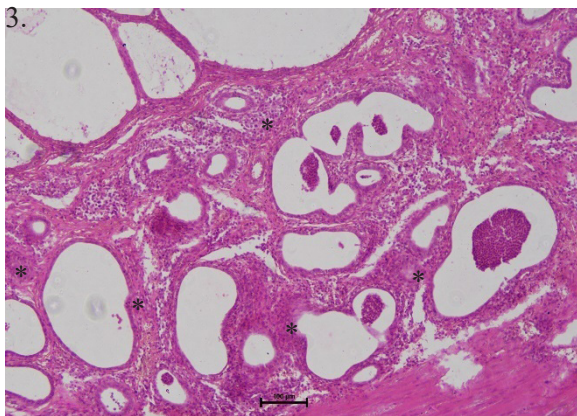


**Fig. 1:** Enlarged uterine horns with presence of necrosis in left uterine horn and presence of multiple number of cysts of variable size along with necrosis in right uterine horn.

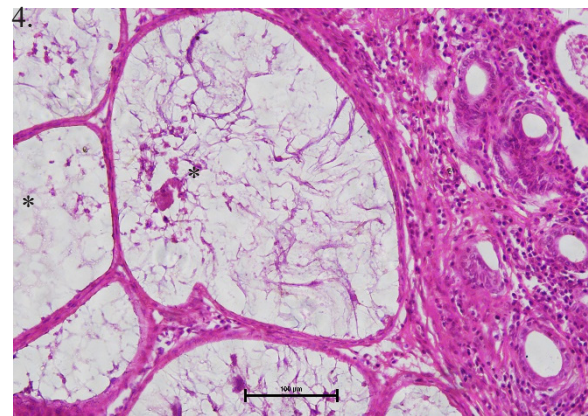


**Fig. 2:** Magnified image of right uterine horn having multiple cysts in uterine endometrium along with purulent exudate filled in the lumen of uterine horn.

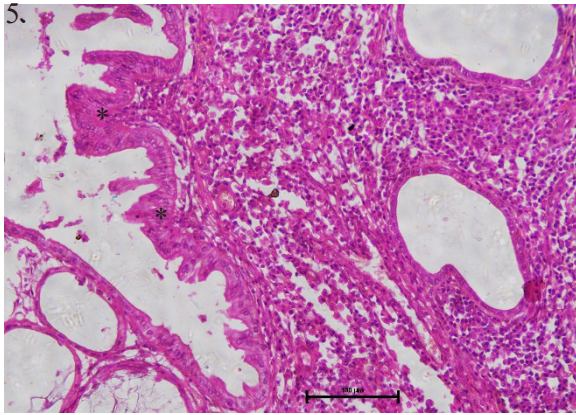
### Histopathological examination



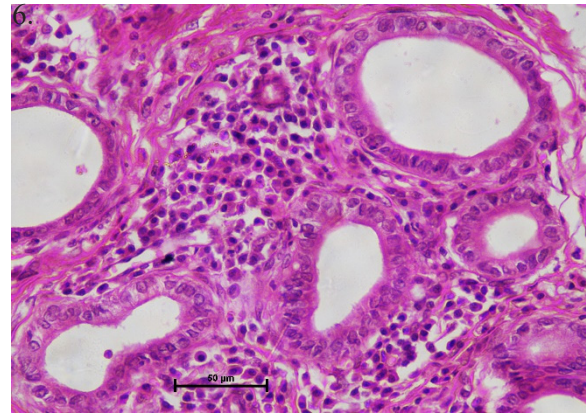
**Fig. 3:** Dilated, cystic endometrial glands of marked irregular size and shape as shown by asterisk and separated by abundant stroma. In some glands there is intra-luminal accumulation of neutrophils as shown by square. There is abundant peri glandular fibrosis as shown by triangle. H&E 100X.



**Fig. 4:** Severe cystic dilatation of endometrial glands as shown by asterisk. H&E 200X.



**Fig. 5:** Dilated endometrial glands lined by columnar cells with slightly irregular and stratified nuclei with mildly eosinophilic cytoplasm as shown by asterisk. There is marked infiltration of inflammatory cells as shown by triangle. H&E 200X.



**Fig. 6:** Cystic glands lined by cuboidal cells with indistinct cell borders and slightly granular eosinophilic cytoplasm. There is infiltration of lymphoplasmacytic inflammatory cells along with macrophages and degenerated neutrophils in the interstitial spaces. H&E 400X.

Abnormality in sex hormones plays a key role in development of CEH (Bigliardi *et al.*, 2004). The increase in plasma progesterone after ovulation promotes endometrial hyperplasia and provides an excellent medium for bacterial growth (Haji *et al.*, 2017) and repeated progesterone stimulus leads to an exaggerated response in the uterus. This causes increased secretory activity of endometrial glands leading to hyperplasia of glands and accumulation of fluid in the endometrial glands as well as uterine lumen (De Bosschere *et al.*, 2001) as observed in the present case. The progesterone also causes a decrease in myometrial contractibility. Thus, the change in the microenvironment of uterus and decreased contractibility make the condition favourable for ascending bacterial infection thus ultimately progressing into pyometra (Agudelo, 2005) which might be the reason for purulent vaginal discharge. Histopathological examination reveals inflammation and cystic condition of endometrial glands. Normalization of elevated plasma urea nitrogen, creatinine, transaminases and alkaline phosphatase as well as cholesterol after ovari-hysterectomy suggested the surgical intervention as the ultimate treatment of the condition (Gupta *et al.*, 2014).

## CONCLUSION

The condition was diagnosed as CEH- Pyometra complex and successfully managed with ovari-hysterectomy and antibiotic therapy. The bitch recovered without any complication.

## CONFLICT OF INTEREST

None

## REFERENCES

- Agudelo, C.F. (2005). Cystic endometrial hyperplasia-pyometra complex in cats. A review. *Vet. Q.*,**27**(4):173-82.
- Bigliardi, E., Parmigiani, E., Cavarani, S., Luppi, A., Bonati, L. and Corradi, A. (2004). Ultrasonography and cystic hyperplasia-pyometra complex in the bitch. *Reprod. Domest. Anim.*,**39**(3):136-40.
- Corrada, Y., Arias, D., Rodriguez, R., Tortora, M. and Gobello, C. (2006). Combination dopamine agonist and prostaglandin agonist treatment of cystic endometrial hyperplasia-pyometra complex in the bitch. *Theriogenology*,**66**(6-7):1557-9.
- De Bosschere, H., Ducatelle, R., Vermeirsch, H., Van Den Broeck, W., & Coryn, M. (2001). Cystic endometrial hyperplasia-pyometra complex in the bitch: should the two entities be disconnected? *Theriogenology*, **55**(7): 1509-1519.
- Gupta, A.J., Dhama, A.J., Patel, S.B. and Shah, R.G. (2013). Evaluation of clinical biochemistry of blood in bitches affected with pyometra. *Indian J. Anim. Reprod.*,**34**(1): 26-30.
- Haji, M.M., Borpujari, D., Talukdar, D.J., Ahmed, F.A., Lalrintluanga, K. and Sarma, K. (2018). Cystic endometrial hyperplasia-open pyometra complex in a female pug. *Indian J. Anim. Reprod.*,**39**(1):63-5.
- Moxon, R., Whiteside, H. and England, G.C. (2016). Prevalence of ultrasound-determined cystic endometrial hyperplasia and the relationship with age in dogs. *Theriogenology*,**86**(4):976-80.
- Schlafer, D.H. and Gifford, A.T. (2008). Cystic endometrial hyperplasia, pseudo-placentational endometrial hyperplasia, and other cystic conditions of the canine and feline uterus. *Theriogenology*,**70**(3):349-58.

Sridevi, P., Kulasekar, K., Arunmozhi, N., Rangasamy, S., Joseph, C. and Rajasundaram, R.C. (2015). Ultrasonographic diagnosis of cystic endometrial hyperplasia-pyometra in bitches. *Indian J. Anim. Reprod.*, **32**(2):52-53.

Woźna-Wysocka, M., Rybska, M., Błaszak, B., Jaśkowski, B.M., Kulus, M. and Jaśkowski, J.M. (2021). Morphological changes in bitches endometrium affected by cystic endometrial hyperplasia-pyometra complex—the value of histopathological examination. *BMC Vet. Res.*, **17**(1):1-11.