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Short Communication

Uterine endometrial cysts in a bitch: A case report

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Abstract

Uterine cysts like serosal cysts and endometrial cysts are occasionally encountered during exploratory studies or laparotomic interventions in canines. These cystic conditions often associated with cystic endometrial hyperplasia-pyometra complex causes breeding related issues. A 9-year-old female golden retriever dog weighing 30 kg was presented to Teaching Veterinary Clinical Complex, Faculty of Veterinary & Animal Sciences, Institute of Agricultural Sciences, Banaras Hindu University with history of serosanguinous discharge since last 15 days. After physical and clinical examination, haematological analysis, serum analysis and ultrasonographical examinations, the case was diagnosed as cystic endometrial hyperplasia-pyometra (CEH-P) complex and was referred for surgical intervention for ovariohysterectomy. The detailed case history, clinical examinations, laboratory findings and surgical procedure are discussed in this present communication.

Keywords: Cystic endometrial hyperplasia, Uterine cysts

Highlights

- Uterine endometrial cysts were accidentally observed in a nine-year-old female golden retriever dog.
- The cystic condition was coupled with cystic endometrial hyperplasia pyometra complex.
- The CEH-pyometra complex along with cysts alter the hormonal homeostasis of the animal.
- The uterine horns were severely fibrotic, nodular and corrugated in gross morphology.

In the last few decades, there has been a growing trend of canine reproductive disorders notably cystic endometrial hyperplasia-pyometra complex, reducing the chances of breeding practices of these animals (WoŸna-Wysocka et al., 2021). Cystic endometrial hyperplasia, uterine polyps, subinvolution of placental sites, serosal inclusion cysts and endometrial cysts are some of the uterine pathologies involving endometrial and mesometrial growth abnormalities (Schlafer & Gifford, 2008). While serosal cysts which are thin-walled structures present on the serosal surface of the uterus and are occasionally found in canines, cysts involving mucosal layer of endometrium are rarely observed (Paiva et al., 2015). They are usually an incidental finding observed during exploratory laparotomy (Sathiamoorthy & Raja, 2012). The cysts may vary in size ranging from 0.3 to 0.5 cm in diameter (Quartuccio et al., 2020). These cysts may affect the fertility of the bitch hampering the implantation process as it may consume significant space of the uterine lumen in addition to hormonal imbalance. There are maximum chances that these cystic conditions occur along with Cystic Endometrial Hyperplasia - Pyometra complex (CEH-P) which occupies a leading position among uteropathies found in the elderly females (Gangwar et al., 2023). There is a close relationship in the manifestation of CEH and pyometra complex in bitches and the average age in relation to it (Arnold et al., 1996). The CEH-pyometra complex unlike cystic conditions are more common in canines and sometimes need immediate attention in case of closed pyometra. In severe cases this condition affects the functionality of the kidney and liver also.

A 9-year-old female golden retriever bitch weighing 30 kg was presented to Teaching Veterinary Clinical Complex, Faculty of Veterinary & Animal Sciences, Institute of Agricultural Sciences, Banaras Hindu University with history of serosanguinous discharge since last 15 days. The animal was bred once at 2 years of age and last recorded heat was observed a year before. The feeding and water intake was normal. Upon clinical examination, the vital parameters were within normal range with pinkish conjunctival mucous membrane. Foul smelling

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Table 1. Haematological and serum biochemical analysis of a 9-year-old intact golden retriever bitch suffering from endometrial cyst coupled with cystic endometrial hyperplasia-pyometra complex

Laboratory Investigation	Parameters	Before Treatment	After Treatment
Haematology analysis	Hb	11.4 gm%	11 gm%
	PCV	34.9%	32.1%
	TEC	5.56 M/mm3	5.40 M/mm3
	TLC	15.9 TH/mm3	14.2 TH/mm3
	Neutrophils	81.7%	75.5%
	Lymphocytes	15.6%	22.2%
	Monocytes	2.6%	2.0%
	Eosinophils	0.01%	0.3%
	Platelets	445 TH/mm3	390 TH/mm3
	MCV	62.8 fl	61.1 fl
	MCH	20.5 pg	19.5 pg
	MCHC	32.7%	30.7%
Liver Function Tests	Albumin	2.06 gm%	2.01 gm%
	Total protein	8.88 gm%	8.16 gm%
	Direct bilirubin	0.05 mg%	0.07 mg%
	Indirect bilirubin	0.04 mg%	0.04 mg%
	Total bilirubin	0.09 mg%	0.11 mg%
	SGOT/AST	24.2 IU/L	29.5 IU/L
	SGPT/ALT	22.3 IU/L	27.3 IU/L
	LDH	115 U/L	120 U/L
	ALP	98 IU/L	101 IU/L
Kidney Function Tests	Blood urea	49.2 mg%	51.12 mg%
	BUN	22.99 mg%	25.51 mg%
	Serum creatinine	0.80 mg%	0.92 mg%

serosanguinous discharge was coming through vulva along with flakes of pus was there around perineal region. In addition to that, the animal had distended abdomen. After cephalic venipuncture, blood sample was sent for haematological and serum biochemical analysis. The ultrasonographical examination (USG) revealed thickened uterine mucosa with multiple anechoic pockets suggesting pus pockets (Fig. 1). The animal was referred for ovariohysterectomy. The haematological and serum biochemical observations are mentioned in Table 1.

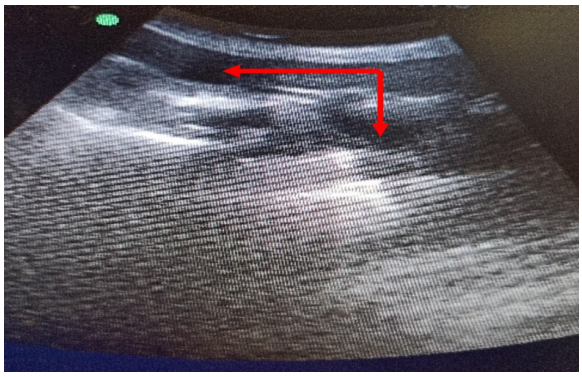


Fig. 1. Ultrasonographical examination of a nine-year-old female golden retriever dog suffering from CEH-pyometra complex and uterine endometrial cyst. The anechoic pockets were resembling to the pus pockets which were confirmed post ovariohysterectomy

From the history, physical examinations, lab findings and imaging techniques, it was diagnosed as open-cervix cystic endometritis pyometra complex and referred for surgical intervention.

The animal was premedicated with atropine sulphate @0.04 mg/kg i/m, Xylazine HCl @2 mg/kg and butorphanol @0.8 mg/kg intramuscular. A 20G IV cannula was fixed in right forelimb cephalic vein with NS line @10 mL/kg for operative period and prophylactic antibiotic ceftriaxone tazobactam @25 mg/kg given intravenously. Induction of anaesthesia was done with midazolam 0.1 mg/kg i/v and propofol @1 mg/kg slow iv and maintenance of anaesthesia was done with propofol. Animal was fixed in dorsoventral position and caudal midline incision was given to expose the uterus.

After proper ligation of broad ligament, the uterus

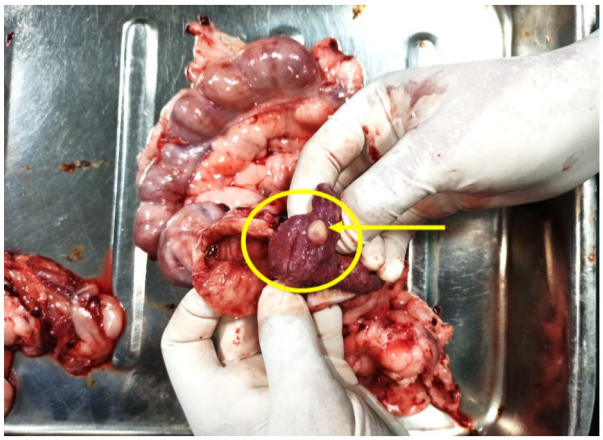


Fig. 4. Gross morphology of the cysts removed from the CEH-pyometra affected golden retriever female dog

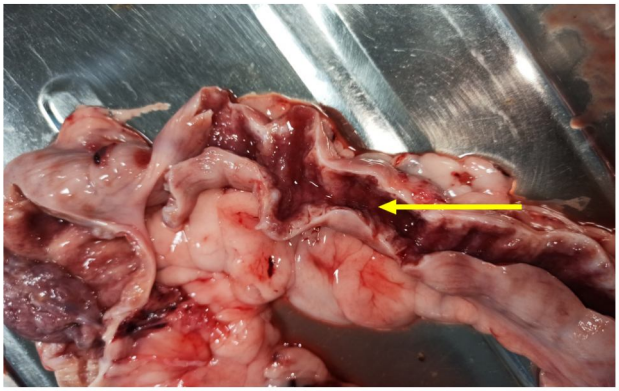


Fig. 2. Gross morphology of the post-surgical uterine horns (lumen) indicating severely corrugated and fibrolytic appearance

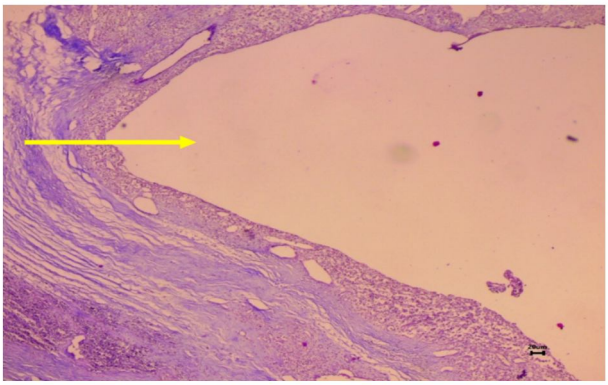


Fig. 5. Histopathological examination of cysts removed after ovariohysterectomy indicating large area of antrum in the cysts

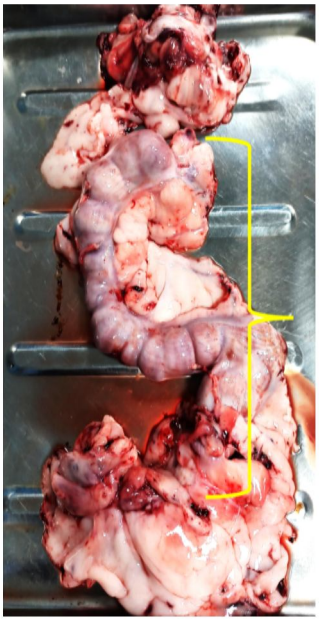


Fig. 3. Gross morphology of the post-operated uterus of a nine-year-old female golden retriever dog

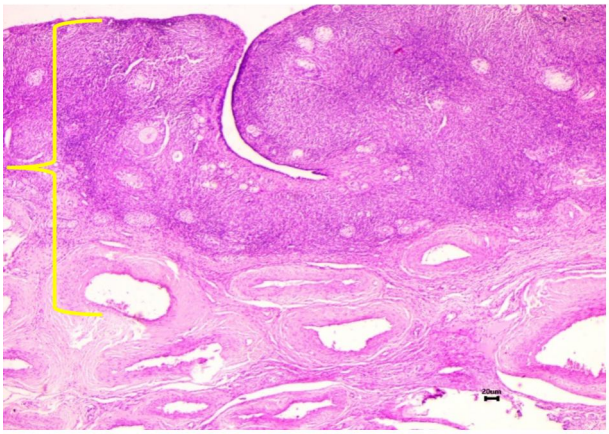


Fig. 6. Histopathological examination of the ovarian cortex of a CEH-pyometra affected female dog

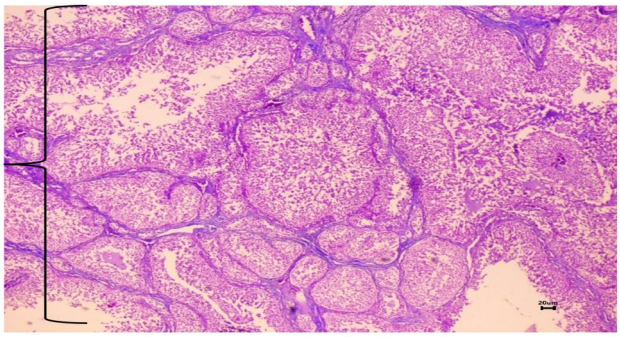


Fig. 7. Histopathological examination of the ovarian medulla of a CEH-pyometra affected female dog

and the ovaries were excised as per the standard procedure. It was followed by suturing of the muscles and subcutaneous tissues with Polyglycolic Acid No. 1 (PGA No. 1). Finally, the skin was sutured with monofilament non-absorbable no.1 nylon in horizontal suture pattern and protective bandage was applied after aseptic dressing of incision site. The uterus of the animal was severely affected with the CEH-pyometra complex resulting in nodular and fibrolytic changes which can be observed in Fig. 2 and Fig. 3. There was a cyst attaching to the endometrial lining and upon close observation another cyst was found within the larger cyst (Fig. 4) with approximately 5 cm in length. For post-operative care, the animal was prescribed with ceftriaxone tazobactam @25 mg/kg b.wt, iv for 5 days, meloxicam 0.3 mg/kg b.wt i/m for 3 days, Pantoprazole1 mg/kg b.wt, iv for 5 days. Furthermore, alternate day dressing was done. Dog was advised for complete rest, light food and plenty of clean drinking water. Sutures were removed on 12th day post-surgery, and the animal recovered uneventfully. The histopathological analysis revealed that there were larger antral areas within the cystic mass (Fig. 5). However, in the cortex of the ovary multiple follicles were observed (Fig. 6) although some sclerotic changes were observed in the ovarian medulla (Fig. 7).

Serosal inclusion cysts are found predominantly in aged pluriparous bitch and are usually focal rather than disseminated (Kennedy & Miller, 1993; Jelinkova et al., 2022). However, findings of uterine endometrial cysts are rare. In the present case the bitch was 9 years old and a single cyst attaching to the endometrial lining of the uterus and was having a cyst attached to it too demonstrating a cyst within a cyst condition. Schlafer and Miller (2007), reported that the cyst formation may be associated with hormonal dysfunction. In the present report purulent vaginal discharge was observed along with pus accumulation in uterus which corroborates with the observations of Sathiamoorthy and Raja, 2012. In conclusion, the uterine cysts attaching to the endometrial lining are very rare in canines as compared to the serosal cysts and may influence the fertility of the animal by significantly blocking the uterine lumen jeopardising the sperm transportation and implantation process. Furthermore, these conditions are seldom found in routine examinations and are more often observed during exploratory surgical interventions.

Conflicts of interest: The authors declare no conflicts of interest.

Author's contributions: VK, DJ: Conceptualized the study; VK, S, DJ: Treated the case; RGK, ERRT: Diagnosed the case and did histopathology; S, DJ: Wrote the manuscript. All the authors read and verified the manuscript.

Data availability statement: Data sets generated during the current study are available with the corresponding author which can be available upon reasonable request.

Use of artificial intelligence tools: During the preparation of this work, the author(s) used iThenticate to check the plagiarism. After using this tool/service, the author(s) reviewed and edited the content as needed and take(s) full responsibility for the content of the publication.

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