Short Communication

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# Successful Management of Cystic Endometrial Hyperplasia-Pyometra Complex in a Labrador She dog

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## *ABSTRACT*

The six-year-old female Labrador presented with complaints of vomiting, restlessness, decreased appetite, and a scanty amount of vaginal discharge. Based on the history and clinical examinations of the patient the diagnosis of this case was done as cystic endometrial hyperplasia-pyometra complex. Surgical intervention (ovariohysterectomy) was performed, followed by post-operative management. The patient showed an uneventful recovery.

***Keywords :*** Cystic endometrial hyperplasia: CEH, Ovariohysterectomy, Pyometra.

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## INTRODUCTION

In female dogs, cystic endometrial hyperplasia (CEH) can lead to pyometra, mucometra, hematometra, or hydrometra. Pyometra involves the accumulation of purulent material in the uterus. Mucometra, hematometra, and hydrometra are other uterine conditions, but they lack significant systemic clinical signs. CEH–pyometra syndrome is a common condition in intact female dogs mostly commonly in old age. The exact cause remains unclear, but it likely involves multiple factors. These include the joint action of steroid hormones (progesterone and estrogen) during reproductive cycles like increased progesterone during diestrus thickens the uterine lining and creates a breeding ground for bacteria (Abdelbaset *et al.,* 2022), endometrial proliferation factors like Insulin-like Growth Factor1 (IGF-1), bacteriological toxins (mainly Escherichia coli and other bacteria like Klebsiella sp., and Streptococcus sp.) can be culprits (Putra *et al.,* 2022), and endometrial remodelling by matrix metalloproteinases. The resulting endometrial changes include exudative and degenerative inflammatory reactions, leading to increased susceptibility to ascending bacterial infections. Unfortunately, accurate and early diagnosis is challenging due to varying clinical

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and histological classifications. Surgical treatment (ovariohysterectomy) is necessary once diagnosed (Schlafer and Gifford, 2008). Pyometra usually appears during or right after a progesterone-dominant phase (diestrus). It was previously believed that cystic endometrial hyperplasia (CEH), which is the next step after subacute endometritis, predisposes bitches to develop pyometra (Sandholm*et al.,* 1975, and, Dow 1958). Some argue that CEH and pyometra should be categorized differently because of the variations in their clinical and histologic findings (Debosschere *et al.,* 2001). Pyometra is frequently described as the endometritis/cystic endometrial hyperplasia/pyometra complex (CEH/P) (Arora *et al.,* 2006). Pyometra is a classical illness of the uterus of bitches and can be categorized as either open- or closed-cervix pyometra. The latter is considered a medical emergency that needs to be treated quickly to avoid sepsis and possible patient death (Smith 2006). The incidence of pyometra is about 25% in intact female dogs and any breeds can be affected (Dennis and Hamm, 2012). While pyometra can also occur in post-whelping (Abdelbas *et al.,* 2022). Symptoms differ according to the severity of the case, but lethargy, depression, vomiting, and anorexia are common (Dennis and Hamm, 2012). Pus accumulation in the uterus is a hallmark of pyometra. It's a serious condition that requires prompt recognition and treatment. If left untreated, the mortality rate can reach 3-4% according to Jitpean (2014), with complications like peritonitis and septicemia being potential consequences (Hagman, 2022).

## CASE HISTORY AND OBSERVATIONS

Six-year-old female Labrador weighing 32 Kg, was brought to Veterinary Clinical Complex at ANDUAT, Ayodhya (U.P.), with a complaint of vomiting, restlessness, decreased appetite, and very scanty vaginal discharge at irregular intervals. Clinical examinations revealed a rectal temperature of 104°F, pale mucous membranes, and slightly elevated pulse, heart and respiratory rates. During the per vaginal examination, greyish to brownish purulent vaginal discharge with an unpleasant odour was observed. An X-ray revealed an enlarged uterus, while abdominal ultrasonography showed an enlarged uterus with a thickened uterine wall and accumulation of hypoechoic to anechoic pus inside. Blood chemistry tests indicated elevated alkaline phosphatase (ALP), alanine aminotransferase (ALT), and cholesterol levels along with low urea and total protein (TP) levels. Haematological results showed anaemia with low Hb and erythrocyte counts, leukocytosis with neutrophilia, along with thrombocytosis.

## TREATMENT AND DISCUSSION

**Fig. 1.** Uterine horn with thickened uterine wall

Based on the history and clinical, haematological, biochemical, radiographics, and ultrasonographical examinations, the dog was diagnosed with cystic endometrial hyperplasia pyometra complex (Fig 1). Surgical treatment by performing an ovariohysterectomy was decided to be done. The surgical field underwent aseptic preparation. The ventral midline was designated as the site of incision for ovariohysterectomy. The surgery was performed under general anaesthesia in a dorsal recumbent position. Pre-anaesthetic medication consisted of intramuscular atropine sulphate at a dosage of 0.04 mg/kg body weight, administered 30 minutes before anaesthetic induction. For surgical anaesthesia, a 1:1 xylazine-ketamine solution was administered intravenously at a dose of 1 ml/10 kg body weight. Additionally, prophylactic antibiotic administration of ceftriaxone via intramuscular injection ensured minimum inhibitory concentration during surgery, thereby mitigating infectious risk. Ovariohysterectomy was conducted by using the standard surgical technique described by Bojrab (1983). Surgical treatment was followed by post-operative management with Ceftiofur sodium (1.1 mg/kg B.wt. intramuscularly), Ranitidine (3.5 mg/kg B.Wt.), Ondansetron (1 mg/kg B.Wt.), syp Liv-52 (2-3 TSF, BD), sypaRBCi pet (2 TSF, BD) and regular antiseptic dressing with Povidone-iodine for 7 days.

**Table 1.** Blood Biochemical Parameters

| PARAMETER | RESULT | STANDARD | REMARKS |
|---|---|---|---|
| Glucose (mg/dL) | 72.54 | 70–140 | Normal |
| Creatinine (mg/dL) | 2.26 | 0.5-1.8 | Normal |
| Urea (mg/dL) | 2.28 | 12-25 | Low |
| Albumin (g/dL) | 2.9 | 2.3-4.0 | Normal |
| Globulin (g/dL) | 4.4 | 2.5-4.5 | Normal |
| ALT (IU/L) | 113.10 | 10-88 | High |
| AST (IU/L) | 17.09 | 10-88 | Normal |
| TP (g/dL) | 1.13 | 5.4-7.7 | Low |
| ALP (IU/L) | 353 | 20-150 | High |
| Cholesterol (mg/dL) | 384 | 110-320 | High |
| Uric acid (mg/dl) | 1.09 | - | - |

**Table 2.** Hematological Parameters

| PARAMETERS | RESULT | STANDARD | REMARKS |
|---|---|---|---|
| Hematocrit (Hct) (%) | 38.0 | 37.3-61.7 | Normal |
| Haemoglobin (Hb) (g/dl) | 10.4 | 12.0-18.0 | Low |
| Erythrocytes ($x10^6$/µL) | 5.12 | 5.65-8.87 | Low |
| MCV (fl) | 63.3 | 61.6-73.5 | Normal |
| MCH (pg) | 20.3 | 21.2-25.9 | Low |
| MCHC (g/dl) | 32.1 | 31.0-37.0 | Normal |
| Total Leukocyte count (TLC)( $x10^3$/µL) | 29.7 | 5.0-16.0 | High |
| Neutrophils ( $x10^3$/µL) | 14.02 | 3-11 | High |
| Lymphocytes ( $x10^3$/µL) | 2.0 | 1.0-5.15 | Normal |
| Monocytes ( $x10^3$/µL) | 0.40 | 0.1-1.4 | Normal |
| Eosinophils ( $x10^3$/µL) | 0.6 | 0.06-1.30 | Normal |
| Basophils ( $x10^3$/µL) | 0.03 | 0.00-0.10 | Normal |
| Platelets ( $x10^3$/µL) | 1040 | 175-500 | High |

# CONCLUSION

The cystic endometrial hyperplasia-pyometra complex is a significant and potentially life-threatening condition in intact female dogs, particularly those of older age. The condition arises due to a combination of hormonal imbalances, bacterial infections, and endometrial changes, leading to the accumulation of purulent material in the uterus. Accurate and early diagnosis is challenging but crucial for effective treatment. Surgical intervention, specifically ovariohysterectomy, is the definitive treatment and is essential to prevent severe complications such as sepsis and death. Post-operative management is vital for ensuring an uneventful recovery. Prompt recognition and treatment of pyometra are necessary to reduce the high mortality rate associated with this condition.

# CONFLICT OF INTEREST

None

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