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Pyometra in cat: A case report

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Abstract

Present study was aimed to study in detail regarding one unique case presentations pertaining to pyometra in a cat. One nulliparous 7 yr old nondescript queen weighing 2.8 Kg was presented with a history of anorexia, abdominal distension, whitish to yellowish mucopurulent discharge from genitalia for 20 days and in recumbency. Ultrasonography examinations confirmed about excessive anechoic to hypoechoic fluid inside distended uterine horns and X-ray of the lateral abdomen revealed distended uterine horns with presumptive diagnosis for pyometra. Haematological evaluations revealed leucocytosis and neutrophilia. Ovario-hysterectomy was performed in the queen as the safest mode of early treatment.

Keywords: Cat, ovario-hysterectomy, pyometra, ultrasonography

1. Introduction

Pyometra, literally meaning "pus-filled uterus," is a common illness in adult intact female dogs and cats and a less frequent diagnosis in other small animal species (Egenvall A., 2001, Hagman R., 2014) [2, 1]. It is an acute or chronic suppurative inflammation of the uterus, characterized by endometrial hyperplasia with cystic dilation of endometrial glands and accumulation of a neutrophil-rich exudate in the uterine lumen. The incidence of feline pyometra is still not well documented and probably underestimated because queens often don't present clinical signs (Brady C.A. et al., 2000) [3]. Progesterone plays an important role in the pathogenesis of infection, for this reason the disease generally develops in the luteal phase or during pseudopregnancy which is a phase of progesterone dominance that lasts approximately 40 days (Hagman, 2018; Hollinshead and Krekeler, 2016) [4, 5]. Opportunistic bacteria are responsible for the disease and *E. coli* is the most frequently isolated one from these pathogens (Hagman and Greko, 2005) [6]. Incidence of pyometra in Cats was diagnosed at a median age of 4 years. The breed with the highest incidence rate was the Sphynx and other breeds were a Siberian cat, Ocicat, Korat, Siamese, Ragdoll, Maine coon, and Bengal. Pyometra was more commonly diagnosed with increasing age, with a marked increase in cats older than 7 years (R. Hagman, 2014) [2]. Presenting complaints include, but are not limited to, blood-tinged purulent vulvar discharge (if the cervix is patent), depression, listlessness, lethargy, hypoxia, anorexia, vomiting, and weight loss. Physical examination findings include abdominal distension, dehydration, and pyrexia (Verstegen J., 2006, Kenney K.J., 1987) [7, 8]. Abdominal ultrasound is considered the best tool for the diagnosis of pyometra (Hollinshead and Krekeler, 2016; Davidson and Black, 2015) [5, 9].

Medical or surgical treatment can be applied depending on the condition of the patient in pyometra cases. Broad-spectrum antibiotic therapy should start immediately after diagnosis in all pyometra cases. Surgery can be performed once the patient has been stabilized and surgical risk is minimized following the owner's consent. The most common treatment of pyometra is the surgical method (A. Esen et al., 2020) [10]. The mean case fatality rate in all queens with pyometra was 5.7%, which is slightly higher than the corresponding reports in dogs of 3-4% (R. Hagman, 2014) [2]. Present study will give an insight to field veterinarians regarding the treatment protocol as well as making them aware

2. History and clinical examination

A nulliparous 7yr old nondescript queen weighing 2.8 Kg was presented to the Animal Reproduction, Gynaecology & Obstetrics section of the Veterinary Clinical complex (College of Veterinary Science & Animal Husbandry, OUAT, Bhubaneswar) with a history of anorexia, abdominal distension, whitish to yellowish mucopurulent discharge from genitalia for 20 days.

The animal was recumbent with a temperature of 99.8°F. Haematological parameters were estimated. The blood parameters were as follows - Haemoglobin 4.6 g%, Total Leucocyte Count (TLC) - 17000 /Cumm, Total Erythrocyte Count (TEC)- $2.53 \times 10^6 / \mu\text{l}$, Packed Cell Volume (PCV)- 13%, Platelet (PLT) - $0.82 \times 10^5 / \mu\text{l}$, Differential leucocyte count (DLC) - Neutrophils-58%, Eosinophils- 01%, Basophills - 01%, Lymphocytes -39%, Monocytes -01%. Ultrasonography of the abdomen revealed excessive anechoic to Hypoechoic fluid inside distended uterine horns (Fig-1). and X-ray of the lateral abdomen revealed distended uterine horns (Fig - 2)

3. Surgical treatment

As suspected for Pyometra, which was later confirmed by USG & X-ray, fluid therapy was instituted to avoid the risk of death due to hypovolemic shock dextrose normal saline (DNS)- 50ml, Ringer lactate (RL)- 50ml through intravenous (IV) drip.

3.1 Restraining and Anaesthesia

In the second half, the Laparotomy was conducted to perform Ovariohysterectomy (OHE). The animal was Premedicated with 0.15 ml Xylazine @ dose rate of 1mg/kg Body weight, Atropine sulphate 0.2 ml @ dose rate of 0.04mg/kg body weight, Ketamine 0.3ml @ dose rate of 5mg/Kg Body weight intramuscular. Maintained anaesthesia with 0.7 ml ketamine. The animal was shaved cleanly, scrubbed 2-3 times with savlon then with povidone iodine & prepared for aseptic surgery (Fig-3)

3.2. Surgical Procedure

On dorsal recumbency, the ventral midline incision was made 2-3 cm caudal to the umbilicus (Fig-4), Muscles were excised to explore the abdomen & observed Distended uterine horn with Pus discharge in the abdominal cavity (Fig-5), Slowly lifted the uterine horns out of the incision site (Fig-6), Both ovarian ends were ligated, transfixed & resected out with chromic catgut size no 1-0 (Fig-7), in the same way, cervical end ligated & incised then the open end of the cervix was closed with catgut size 1-0 with continuous suture pattern, The abdominal cavity was flushed with normal saline, removed pus, debris, infused 1 bottle (100ml) of metronidazole. Muscles were closed with a simple continuous suture pattern using Vicryl size no 1-0 & Intradermal suture pattern to close the skin using Vicryl 1-0. On sutured wound applied Povidone iodine & dressed (Fig-10). During the entire operative period, 5% dextrose saline was intravenously infused slowly.

3.3 Post-Operative Care

After surgery, antibiotic ceftriaxone - 60 mg @20 mg/Kg body weight (Injection Montaz 125mg) was administered intramuscularly, analgesic Meloxicam- 0.3 ml (Melonex 5mg/ml) Intramuscularly . syrup aRBC pet - 3ml orally twice, Advised the owner to continue the treatment for the next 5 more days & Dressing of wound once in 2 days, asked to use the Elizabethan collar.

4. Results and Discussion

A study from Sweden reported that 2.2% of intact queens were diagnosed with pyometra by the age of 13 years. (Hagman R et al., 2014) [2]. The incidence of pyometra is

considered to be lower in queens than in bitches, as queens are induced ovulators. However, queens often don't show clinical signs as much as bitches which is the reason for the underestimation of disease incidence in Queen

However, underestimation of disease incidence is likely because queens often do not express clinical signs to the same extent as seen in bitches. (Verstegen J and Onclin K.2006) [7]. Generally, pyometra occurs in queens between the age of 5-7 (average 7.6 years, range 1-20) but it can be observed any time after puberty (Ettinger & Feldman, 2010) [11]. Clinical signs usually occur within 4 weeks after the onset of oestrus in queens that are either mated, spontaneously ovulate or are induced to ovulate (mechanical stimulation or hormone induction) (Hagman, 2018) [4]. In this case also the cat was 7 years old has never conceived



Fig 1: Anechoic to hypoechoic fluid-filled uterus in USG



Fig 2: Distended Uterine Horn in Radiography

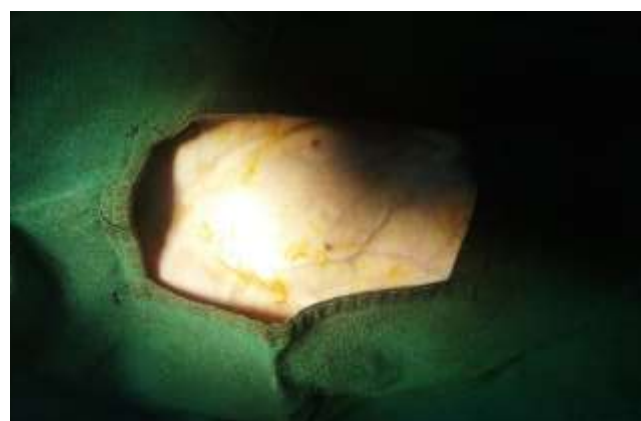


Fig 3: Incision site Prepared aseptically for OHE

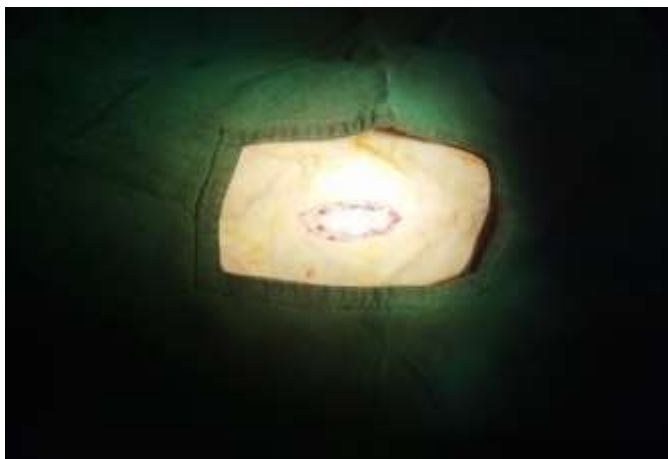


Fig 4: Skin & fascia were incised



Fig 8: Excessively distended uterine horn & body



Fig 5: Distended uterine horn with Pus discharge in the abdominal cavity



Fig 9: Pus filled uterus



Fig 6: Uterine horns out of the incision site



Fig 10: Dressed Incision wound



Fig 7: Ligation of ovarian ends

Table 1: Hematological analysis of Pyometric cat

Hematological parameters	Results	Reference value
Total erythrocyte count -TEC($\times 10^6 \mu\text{L}$)	2.53	5-10
Total leucocyte count-TLC ($\times 10^3 \mu\text{L}$)	27	6-18
Hb (gm%)	4.6	8-15
PCV (%)	13	30-45
Neutrophils (%)	78	35-75
Lymphocytes (%)	19	20-55
Eosinophils (%)	01	2-10
Basophils (%)	01	0-1
Monocytes (%)	01	1-4

Present study before treatment, the haemoglobin level of the cat was decreased indicating anaemia. This might be due to loss of red blood cells by diapedesis into the uterine lumen apart from depressed feed intake and impaired erythropoiesis under the toxemic condition in severely affected cases (Payan-Carreira R, 2013) [12]. According to (Singh S et al., 2006) [13] The PCV level was decreased in the bitches indicating a mild normocytic, normochromic philia might be due to and regenerative type of anemia. In this case also we can see PCV is 13% which is less than the normal value. Total erythrocyte count before treatment was decreased in the bitches affected with pyometra indicating anemia which is similar to this study (Greene et al.1998) [14]. There was leucocytosis along with neutrophilia suggestive of bacterial infection corroborating with febrile condition.

Surgical treatment, OHE, is safest and most effective because the source of infection and bacterial products are removed and recurrence prevented. (Hardy RM 1974) [15].

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