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Case Report: Management of Open Pyometra on the Persian Queen

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ABSTRACT

Pyometra commonly occurs in female cats. There are two types of pyometra: open pyometra and closed pyometra. Open pyometra refers to purulent and bloody discharge from the vulva, while closed pyometra does not have any vaginal discharge; however, there is an enlarged abdomen from the fluid-filled uterus. A 2-year-old Persian queen with an enlargement abdomen was clinically diagnosed with open pyometra as there was vaginal discharge. Additional examination, such as ultrasonography, was also performed to establish the diagnosis. Using ultrasonography, hyperechoic imaging clearly showed in the uterine lumen of the uterus. Based on the following examinations, an ovariohysterectomy was performed to eliminate the source of infection. Anti-inflammatory and antibiotic drugs were administered post-surgery, and the patient fully recovered after one week of intensive care.

Keyword: Cat, Ovariohysterectomy, Pyometra, Ultrasonography

INTRODUCTION

Cat diseases sometimes arise due to several factors, including bacteria, viruses or parasites which develop themselves in the cat's body without being noticed and causing death (Afrisawati, 2018). One of them is a reproductive disease that most often attacks female cats, namely pyometra disease. Pyometra is the most common reproductive problem in female cats (Hasan et al., 2021). Pyometra is a common disease that is often found in veterinary clinics among cat who have not been sterilized. This disease can be caused by the influence of estrogen and progesterone stimulation for a long time (Hagman, 2018). Large-scale or segmental uterine hypertrophy may be present in pyometra. Progesterone dominance, which lasts for about 40 days following sterile mating, is the reason why the condition is most commonly observed in cats during diestrus or pseudopregnancy (Hollinshead and Krekeler, 2016). The luteal

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phase produces ideal conditions for the growth of microorganisms within the uterus. In addition to encouraging cervical closure and uterine secretion, progesterone also stimulates the growth and multiplication of endometrial glands and inhibits myometrial contractions (Abdallah et al., 2023).

Pyometra was diagnosed based on the patient's medical history, physical and gynecological examinations, hematology and blood biochemistry tests, and radiography or ultrasound of the abdomen. (Abdallah et al., 2023). It has been demonstrated that ultrasonography can detect intrauterine fluid even in cases where the uterine diameter is within normal limits. Further pathological changes in the tissue and ovaries, such as ovarian cysts or cystic endometrial hyperplasia, can also be revealed by ultrasonography (Xavier et al., 2023). Therefore, ovariohysterectomy should not be postponed in order to reduce the risk of sepsis and endotoxemia. Surgical ovariohysterectomy is still considered the most effective treatment compared to medication (Hagman, 2022). It is important to seek immediate veterinary care when pyometra is suspected because a patient's status may deteriorate rapidly and early intervention increases chances of survival.

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MATERIALS AND METHODS

Case History

A 2-year-old Persian cat weighing 3.2 kg, was presented to the Alfa Animal Clinic. Based on the owner's statement, the cat had been lethargic for several days. Physical examination revealed a rectal temperature of 39.2°C, heart rate of 130 beats per minute, and a respiratory frequency of 34 breaths per minute. The patient showed lethargy, purulent mass on the vulva (Figure 1) and enlargement of the abdomen.

Figure 1. Purulent mass on the vulva

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Diagnosis

A clinical examination, including ultrasonography, was performed to confirm the diagnosis. A brief ultrasound of the caudal abdomen showed hyperechoic imaging of the uterine lumen with a transverse probe position (Figure 2). Thus, this case was confirmed as a closed pyometra.

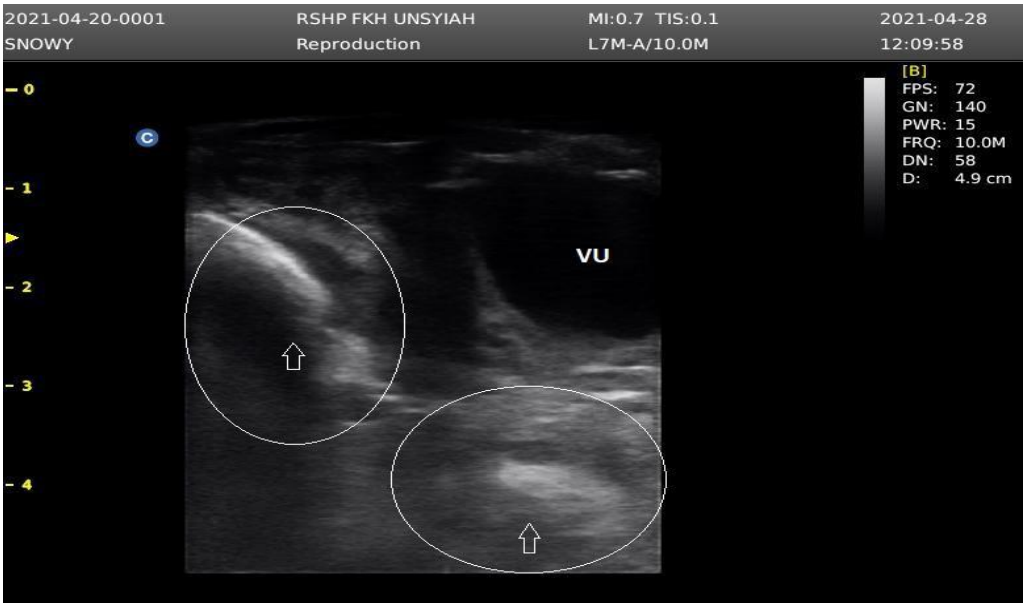

Figure 2. Ultrasonography of the lower abdomen. Hyperechoic imaging clearly showed the uterine lumen of uterus.

Treatment

The main treatment for pyometra is ovariohysterectomy. The queen fasted for approximately 12 hours before surgery. Sodium chloride 0.9% was administered intravenously to stabilize the patient. Firstly, premedication was administered using an atropine sulfate at 0.02 mg/ml of body weight. The queen was anesthetized using a combination of ketamine at a dose of 10-30 mg/kg of body weight and Xylazine at a dose of 1-3 mg/kg of body weight. A midline laparotomy for ovariohysterectomy was performed to remove both sides of the ovaries and the uterus was found to be filled with pus. Treatment was carried out orally and topically for five consecutive days to prevent postoperative infection. Cefixime antibiotics were administered orally at a dose of 10 mg/kg, meloxicam as anti-inflammatories at a dose of 0.1 mg/kg, vitamin C as support at a dose of 25 mg/kg and vitamin B-comp at a dose of 10 mg/kg formulated in pulverized form, which was

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given twice a day. Bioplacenton and Gentamicin were 0.1% applied twice a day. The ointment functions to speed up the wound healing process and has better absorption ability and provides optimal local effects.

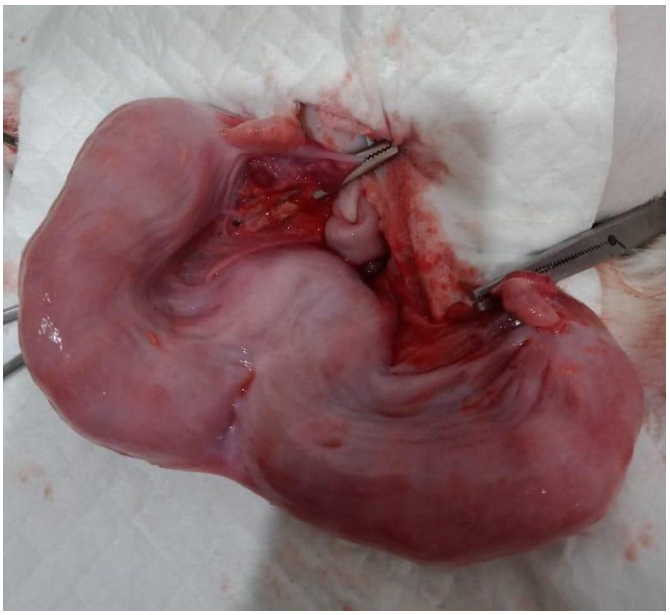

Figure 3. Ovariohysterectomy showing enlarged uterine horns.

RESULTS AND DISCUSSION

The complex pathogenesis of pyometra in cats is not fully understood but is known that it involves hormonal and bacterial factors (Hagman, 2018). Progesterone-mediated pathological proliferation and the formation of cystic endometrial hyperplasia are believed to predispose to pyometra disease. The endometrial response to progesterone is enhanced by an increase in estrogen during the estrous phase. These endometrial changes are influenced by chronic estrogen stimulation from repeated estrous cycles that do not end in pregnancy. Conversely, during the diestrus phase, an increase in progesterone concentration leads to an elevation in endometrial proliferation, endometrial gland secretion, and a decrease in myometrial and cervix contraction. Changes in the uterine microenvironment and decreased contractility would favor bacterial infection (Bosschere et al., 2001; Kumar and Saxena, 2018; Limmanont et al., 2021).

Pyometra cases can present with a variety of clinical findings, such as inappetence or anorexia, depression or lethargy, polydipsia, polyuria, tachycardia, and tachypnea. The possibility of complications like uterine rupture, nephropathy, peritonitis, endotoxemia, and,

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most importantly, sepsis makes pyometra a potentially fatal illness (Rautela and Katiyar, 2019; Hagman, 2022). Examination using ultrasound can clearly evaluate endometrial integrity, variations in uterine wall thickness, uterine distension, and cysts in the endometrial glands (Bigliardi et al., 2004). Ultrasound imaging is an important supporting diagnosis for evaluating the abdominal condition of cats experiencing pyometra. Ultrasound examination of cats experiencing pyometra showed a uterus filled with anechoic to hyperechoic fluid (Misk and El-Sherry, 2020).

The hormone PGF2α can be used to treat pyometra cases. This hormone has uterotonic and ecbolic benefits that can facilitate the drainage of purulent material from the uterus (Hollinshead and Krekeler, 2016). However, the use of the hormone PGF2α does not apply to cases of closed pyometra. The PGF2α hormone has many side effects in cats such as hypersalivation, diarrhea, tenesmus, restlessness, and the appearance of a lordotic posture (Mitacek et al., 2014; Misk and El-Sherry, 2020). Antibiotic use guidelines recommend using fluoroquinolones, such as enrofloxacin and amoxicillin/clavulanate as primary and secondary treatments for pyometra. By actively expelling purulent contents from the uterus and preventing bacterial growth, pharmacological pyometra aims to promote uterine healing. Steroids, antiprogestants, and antibiotics are often administered concurrently as part of these protocols (Jessen et al., 2019). Although the standard treatment protocol for pyometra often includes antibiotic therapy, perioperative antimicrobials should only be administered to animals exhibiting moderate to severe depression (Turkki et al., 2023).

If the uterus is not treated efficiently, postponing surgery increases the risk of endotoxemia and sepsis. Ovariohysterectomy has the advantage of eliminating the infection permanently (Hagman, 2018). Packing off the uterus with moistened laparotomy swabs will prevent pus from accidentally leaking into the abdominal cavity through uterine laceration or the fallopian tubes or ovarian bursa opening. The broad ligament's vessels are often ligated. The residual cervical tissue stump is left fully free of purulent material and is not oversewn. The abdomen is normally closed, but if pus is present, it should be removed; the abdomen should be rinsed with multiple liters of heated physiological saline solution, and a closed suction (or open) drainage system should be taken into consideration (Devey, 2013; Hagman, 2022). The main strategy for preventing pyometras is elective OHE, or spaying. However, sterilization can have unfavorable side effects as well, such as complications from surgery and anesthesia, an increased risk of developing some musculoskeletal and endocrinological disorders, obesity, and female urinary incontinence. The animal's breed must be taken into account when carefully weighing the benefits and drawbacks of any particular procedure (Root-Kustritz, 2012; Kutzler, 2020; Xavier et al., 2023).

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CONCLUSION

In conclusion, open pyometra needs to be treated right away because it is an emergency. This case was diagnosed based on the appearance of symptoms such as lethargy, abdominal enlargement, and vaginal discharge. The diagnosis of pyometra may be established with the aid of supportive tests like ultrasonography. After the operation, the patient made a full recovery.

ETHICS APPROVAL

This case report did not need ethical clearance as the study was conducted according to the medical records of Alfa Animal Clinic and Syiah Kuala Veterinary Teaching Hospital. Data of Medical records, physical examinations, ultrasonography, and treatments were performed by certified veterinarians or under the supervision of certified veterinarians.

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