A RETROSPECTIVE STUDY OF PYOMETRA IN CANINE AND FELINE IN THE KUALA LUMPUR VETERINARY HOSPITAL

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ABSTRACT. Pyometra is a serious issue as it can threaten the life of the patient if no treatment is undertaken at the early stage. From 2013 to 2017, Kuala Lumpur Veterinary Hospital (KLVH) recorded 100 cases of pyometra in the feline and canine species. The objective of this study is to report the number of pyometra cases in cats and dogs received by KLVH between 2013 and 2018. This study analysed data from the KLVH registration system, IPVeins, including the log book records. Of the 75,206 registered cases, only 31,196 cases of female feline and canine were recorded from year 2013 to 2017. 27,717 were cats and 3,479 were dogs, respectively. The total number of pyometra cases among canine and feline was 100, involving seventeen dogs (17%) and eighty-three cats (83%). Overall, the percentage of pyometra cases in cats was higher compared to dogs.

Keywords: pyometra, cat, dog Kuala Lumpur Veterinary Hospital.

INTRODUCTION

Pyometra among animals, especially feline and canine are a serious issue as it is a sexually transmitted disease and is potentially life-threatening to the patient. Pyometra is caused by hormonal changes, most commonly by malignant lesions in the uterus.

Pyometra is usually caused by the influence of oestrogen and subsequent progesterone stimulation over a long period of time, along with bacterial infection (Dow, 1959). Almost 20% of female intact dogs will experience pyometra by 10 years of age (Jitpean *et al*., 2012). The study by Egenvall *et al*., (2001) stated that the disease risk varies significantly among dog breeds, and in certain breeds, more than 50% of female dogs will contract pyometra before 10 years of age. The preliminary diagnosis of pyometra is determined by case history, physical examination, laboratory tests and radiography or/and ultrasonography showing the signs of a fluid-filled enlarged uterus (Jitpean *et al*., 2017).

The most common isolated bacteria from the uterus of pyometra patients are *Escherichia coli (E. coli)* (Hagman and Greko, 2005). *E. coli* which is a gram-negative bacterium releases endotoxin into the circulation during bacterial growth and death, and endotoxin is a potent inducer of inflammation (Jitpean *et al*., 2017). Choi (1975) stated that the common bacteria cultured from cats with pyometra were *Escherichia coli, Staphylococcus, Streptococcus, Pasteurella, Klebsiella* and *Moraxella*. According to Bigliardi *et al*., (2004) imbalance of hormone

due to hormonal therapy may also result in pyometra.

Depending on the patency of the cervix, there are two types of pyometra which are open-cervix pyometra and closed-cervix pyometra Smith, (2006). According to Nichole *et al*., (2005) the open-cervix pyometra can be identified by a sanguineous to mucopurulent discharge from the vagina of the patient and may occur up to 3 months after a standing heat. Closed-cervix pyometra is hard to detect due to a lack of purulent vaginal discharge, causing the patient to be quite ill at the time of diagnosis, and requires rapid medication procedures which are surgery to prevent overwhelming sepsis and potential death (Smith, 2006). Small breed and senior dogs are seen to have a higher possibility of having open cervix pyometra while medium or large breed and adult dogs have a higher possibility of having closed-cervix pyometra (Ng Xin Hui *et. al*., 2017).

According to Feldman and Nelson (2004), the severity of illness at the time of diagnosis depends to a large degree on the ability of the owner recognising the symptoms of pyometra and seeking for veterinary care. Smith (2006) stated that the clinical signs that can be observed includes dehydration, polydipsia, polyuria, lethargy, abdominal pain, anorexia, vomit or diarrhoea, fever or hypothermia, abnormal mucosal colour, tachycardia and increased heart rate of the patient. Pyometra in bitches is polysystemic dioestrual disorder which if not treated can induce high mortality as it may cause sepsis and endotoxaemia (Fransson and Ragle, 2003; Monnet E., 2012).

From 2013 to 2017, KLHV registration system, IP-Vein, recorded 100 cases of pyometra among felines and canines, with a pattern showing an increasing number of registered patients receiving treatment in KLHV due to lack of awareness among pet owners.

Therefore, the objective of this study is to report and highlight the number of pyometra cases in cats and dogs at KLHV between 2013 and 2018. In so doing, the reproductive health of canines and felines will be highlighted to create awareness among pet owners as well as share the findings with small animal veterinarians as a common finding in pets.

MATERIALS AND METHOD

This study analysed data from the KLHV registration system, IPVeins, including log book records. From 75,206 registered cases, only 31,196 cases of female feline and canine were recorded. The total number of pyometra cases among canines and felines received by KLHV from 2013 to 2017 was 100. The data was filtered carefully to avoid duplication of entries, records and other non-related information. The final collected was analysed descriptively.

RESULTS AND DISCUSSION

From IP-Veins, the total number of female cats and dogs registered was 31,196 from year 2013 to 2017. Of this, 100 cases of pyometra among female cats and dogs was recorded (Table 1), making up seventeen dogs (17%) and eighty-three cats (83%). The percentage of pyometra cases was higher

Table 1. Number of pyometra cases of cats and dogs in KLHV from 2013 to 2017.

SPECIES	2013	2014	2015	2016	2017	TOTAL
DOGS	5	1	2	5	4	17
CATS	5	5	14	25	34	83
TOTAL	10	6	16	30	38	100

Table 2. Number and percentage of canine pyometra cases in KLHV from 2013 to 2017.

Number of cases	2013	2014	2015	2016	2017	TOTAL
Number of female dog receiving treatment in KLHV	717	706	535	702	819	3479
Number of pyometra cases	5	1	2	5	4	17
Percentage of dog pyometra cases %	0.7	0.14	0.37	0.71	0.49	0.49

Table 3. Number of pyometra cases in feline received by KLHV from 2013 to 2017.

Number of cases	2013	2014	2015	2016	2017	TOTAL
Number of female cat receiving treatment in KLHV	4,877	5,612	4,306	5,970	6,952	27,717
Number of pyometra cases	5	5	14	25	34	83
Percentage of cat pyometra cases %	0.10	0.09	0.33	0.42	0.49	0.30

Table 4. Number of pyometra cases in different breeds of canine received by KLHV from 2013 to 2017.

DOG BREED	2013	2014	2015	2016	2017	TOTAL
LOCAL/TELOMIAN	2	1	2	2	4	11
SHIH TZU	0	0	0	1	0	1
DALMATIAN	0	0	0	1	0	1
MIX BREED	3	0	0	1	0	4
TOTAL	5	1	2	5	4	17

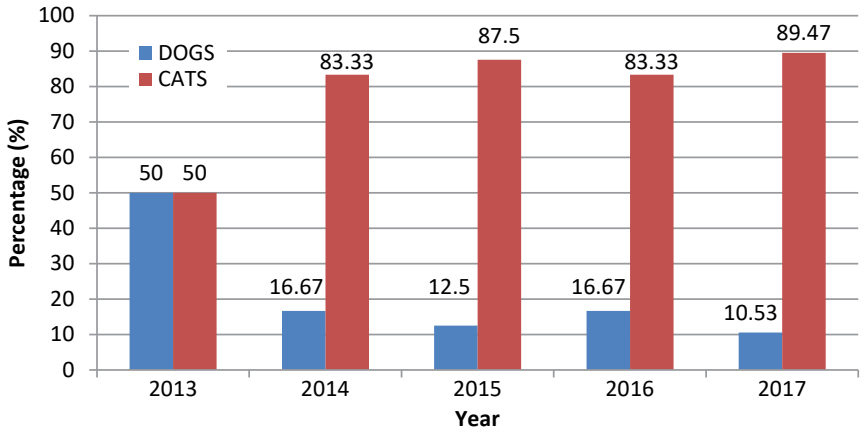

Figure 1. Percentage (%) of pyometra cases in KLHV Year 2013 - 2017.

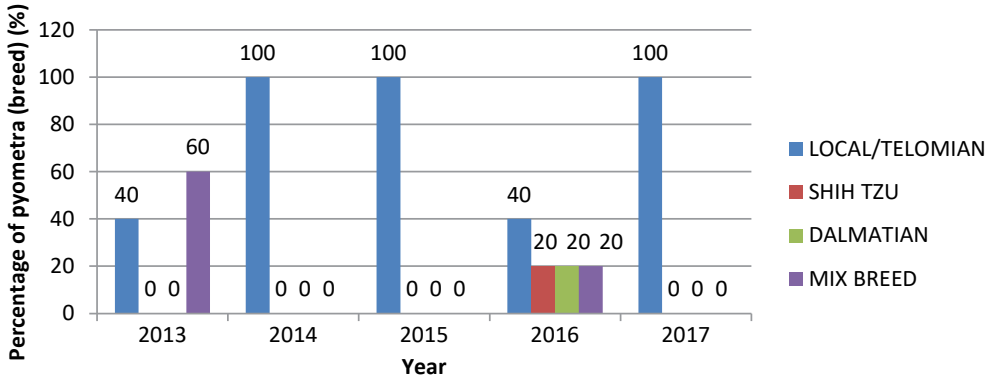

Figure 2. Percentage of pyometra cases among dog breeds in KLHV.

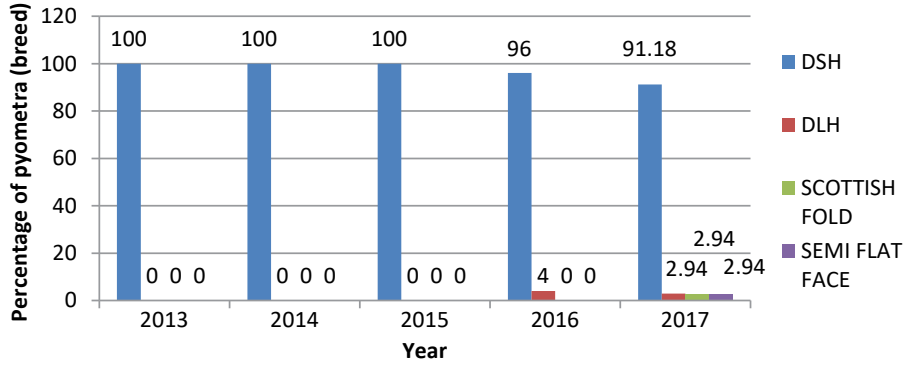

Figure 3. Number of pyometra cases among cat breeds in KLHV.

compared to dogs because the number of cats and dogs registered from 2013 to 2017 was 27,717 and 3,479 patients respectively (Figure 1).

Out of 3,479 cases of female dogs, 17 (0.49%) were diagnosed with pyometra (Table 2). The pyometra patients among dogs showed the lowest number in 2014 which was 1 case only (0.14%). This increased from 2014 to 2016. In 2017, the number of cases decreased to 4 cases compared to 5 cases in 2016. Year 2016 showed the highest percentage of pyometra cases which was 0.71%.

Pyometra cases among cats showed an increasing number from 2014 to 2017, with the highest being 34 cases. The total percentage of this disease was 0.3% with the highest of 0.49% in 2017 and lowest was 0.09% in 2014 (Table 3).

In 2013, five pyometra cases were recorded among female dogs, where two of it involved a local breed or Telomian, and three of it involved a mixed breed. In 2014, 2015 and 2017, only local breed dogs were infected with pyometra, with total number of one, two and four dogs respectively. In 2015, there were cases involving several dog breeds, with two cases of local breed, one case for Shih Tzu, one case for Dalmatian and one case for mixed breed (Table 4). Figure 2 shows the percentage of pyometra among different breed of dogs.

In 2013 and 2014, five pyometra cases were recorded among female cats, which were all domestic short-hair (DSH) breed. In 2015 and 2016, the number increased steeply to 14 and 24 cases, respectively, involving DSH and one case of domestic long-hair (DLH) breed (Figure 2). The numbers of pyometra cases among cats were increasing, whereby in 2017, a total of 34 cases were recorded, with 31 cases of DSH, one case of DLH, one case of Scottish Fold and one case of semi-flat faced breed (Figure 3).

The results obtained from descriptive analysis of IP-Veins show that the numbers of pyometra cases among cats and dogs increased from year 2013 to 2017 with a total of 83 and 17 cases respectively. This is because the number of registered patients was also increasing, totalling 27,717 cats and 3,479 dogs. The increasing numbers of this sexually transmitted disease may be contributed by the increasing number of stray animal population in Kuala Lumpur. There was no latest data on the number of stray cats and dogs available but in 2010 to 2013 Kuala Lumpur City Hall (DBKL) stated that the number of stray dogs caught increased from 6,637 to 9,050, indicating a fast-growing population of stray dogs. This stray population could contribute in spreading this disease especially among free roaming pets. Public complaints on stray animals received by Department of Veterinary Science, Federal Territory of Kuala Lumpur, were also increasing each year.

In general, the percentage of pyometra from the results obtained was very low, which was 0.3% in cats and 0.49% in dogs. However, this disease is a serious issue as it is potentially life-threatening to the patient if no treatment is taken in the early stages of infection. The clinical signs associated with pyometra depends on the patency of the cervix. Open-cervix pyometra usually can be identified at the early stages by a vaginal discharge in the patient, compared to closed-cervix pyometra that prevents

emission of vaginal discharge. Patients with closed-cervix pyometra usually show mild clinical signs such as lethargy, depression and inappetence which can progress to more severe conditions such as septicaemia and toxaemia, continued with dehydration, shock and eventually death.

In KLHV, patients with open-cervix pyometra were usually mild cases and were initially treated with antibiotics for one week to reduce the swelling of the uterus and the risk of surgical procedure. However, for the cases of closed-cervix pyometra, emergency surgical procedures were taken to prevent patients from progressing to a more severe condition, including death due to septicaemia and toxaemia.

CONCLUSION

This study showed an increasing number of pyometra cases among cats and dogs. Pyometra is a serious issue as it can threaten the life of the patient if no further treatment is taken at the early stages. It is important for pet owners to be aware of the condition of their pets to prevent any incidental death due to lack of awareness in the issue of sexually transmitted disease. Owners should also be aware of the association of their pets with stray animals as this is another route of infection.

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