EPIDEMIOLOGY OF CANINE PYOMETRA IN GUJARAT

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ABSTRACT

This epidemiological investigation was taken up on 17 bitches, 9 pyometric (6 open; 3 closed pyometra) and 8 normal bitches presented for ovario-hysterectomy at the College Clinic. The age range of affected bitches was 2 to 13 years with a mean of 7.61 ± 1.31 years. The age of normal bitches presented for spaying ranged from 1.5 to 4.5 years with a mean of 3.31 ± 0.33 years. Of the 9 pyometric bitches, 4 cases (44.44 %;) were in 9-12 years age group followed by 3 cases (33.33 %) in <4 years age group and 1 case each (11.11 %) in 5-8 years and >13 years age group. Further, the highest incidence of pyometra was observed in Pomeranian breed (4 cases) and in nulliparous bitches (77.78 %). Oestrous cycle was irregular in 44.44 and 62.50 per cent of pyometric and normal bitches. None of the bitches had received exogenous steroid- estrogen or progesterone.

KEY WORD : Bitch, Epidemiology, Pyometra, Spaying,

INTRODUCTION

One of the meticulous metestrual reproductive disorders in pet bitches is cystic endometrial hyperplasia pyometra complex- CEHPC. As the name implies, it denotes hyperplastic changes of the endometrium with presence of pus in the uterus of the bitch. Among the various pathological reproductive disorders in bitches, the incidence of CEHPC has been found to be 27.27 % (Deka, 2003). Dabhi and Dhami (2007) analysed the reproductive disorders in female dogs presented to the College Clinic at Anand in Gujarat and reported that the canine pyometra was the most common reproductive ailment (27.23%) followed by mammary tumours (16.52%), spaying (11.61%), canine transmissible venereal granaluma (CTVG; 7.14%), misalliance (3.12%) and others (10.26%). Many aetiological factors are believed to cause the CEHPC in bitches; hormonal imbalance, nulliparity, breed and age susceptibility and microorganisms are some of them. Probably more than two factors act at a time leading to this disease entity. This syndrome is probably best categorized as an infectious cause of infertility even though the role of the endocrine environment is significant (Arthur *et al*., 2001). The present communication reports on epidemiological aspects of physio-pathology of canine pyometra in Gujarat.

MATERIALS AND METHODS

This study was undertaken during the year 2011-2012 at the College Clinic, Anand on 17 pet bitches presented for treatment of pyometra (n=9) and/or neutering/spaying (elective surgery, n=8). The detailed information on breed, age, weight, parity, nature of oestrous cycle and date of last oestrus/ mating of pyometric and normal healthy bitches was recorded. The disease condition was confirmed clinically through signs, vaginal discharge, abdominal palpation, ultrasonography and finally by ovario-hysterectomy or spaying. Efforts were made to know the epidemiological factors responsible for this malady in pet bitches of surrounding areas through analyzing the available data.

RESULTS AND DISCUSSION

Information on breed, age, weight, parity, nature of oestrous cycle and date of last oestrus/mating of pyometric and normal healthy bitches under study is furnished in Table 1.

Table 1. Breed, age, body weight, parity, nature of oestrous cycle and date of last oestrus/mating of pyometric and normal spayed bitches under study

Animal No.	Breed	Age (Year)	Body wt (kg)	No. of whelping	Nature of oestrous cycle	Last oestrus / mating (before)
Pyometric Bitches						
1	Doberman	2.0	19.0	0	Regular	4 weeks
2	Doberman	3.0	30.0	1	Regular	-
3	Pomeranian	11.0	15.0	0	Irregular	8 weeks
4	Pomeranian	7.0	8.0	0	Irregular	52 weeks
5	Pomeranian	13.0	18.0	0	Irregular	9 weeks
6	Pomeranian	3.5	23.5	0	Regular	8 weeks
7	Labrador	9.0	45.0	0	Regular	4 Weeks
8	Cocker Spaniel	10.0	20.0	1	Irregular	-
9	Cross	10.0	33.0	0	Irregular	15 weeks
Mean ± SE		7.61±1.31	23.50±3.67	---	---	---
Normal Spayed Bitches						
1	Pomeranian	3.0	9.0	0	Regular	8 weeks
2	Pomeranian	4.0	14.0	0	Irregular	24 weeks
3	Doberman	1.5	21.0	0	Regular	4 weeks
4	Labrador	3.0	30.0	1	Irregular	14 weeks
5	German Shepherd	3.5	33.0	1	Regular	6 weeks
6	Cross	3.0	29.0	1	Regular	4 weeks
7	Cross	4.0	25.0	0	Regular	7 weeks
8	Cross	4.5	28.0	1	Irregular	12 weeks
Mean ± SE		3.31±0.33	23.63±2.96	---	---	---

Age: For this study, 9 bitches suffering from pyometra and those 8 presented for normal spaying were categorized into 4 groups. The incidence of pyometra was higher in 9-12 years age group (44.44 %; 4 cases), followed by < 4 years age group (33.33 %, 3 cases) and in 5-8 years and >13 years age groups (11.11 %, 1 case each). The age range of affected bitches was 2 years to 13 years with a mean of 7.61 ± 1.31 years. All 3 bitches with closed pyometra were between 2 and 10 years of age. The age range of bitches presented for spaying was 1.5 to 4.5 years with a mean of 3.31 ± 0.33 years.

These findings corroborated with the reports of various scientists (Arora, 2005; Dabhi and Dhami, 2007; Hagman *et al.,* 2011), who reported the age range of pyometric bitches as 6 months to 18 years. Ettinger and Feldman (1993) stated that the CEHPC is a disease of middle age, cycling females with a mean age of 7 years; the range of age is from 10 months to 20 years. According to many previous reports (Nomura *et al*., 1983; Funkquist *et al*., 1983; Sharma, 2004; Dabhi and Dhami, 2007), of the total affected bitches, only 12-15 per cent were under 6 years of age. It is suggested that in older age, the functionality of endocrine glands, gonads and their interrelationship usually slow down; therefore, the incidence of pyometra increases with advancing age. The higher incidence observed in bitches older than 9 years of age thus supported the earlier consensus of several authors that pyometra is primarily a disease of middle to older age group resulted from alterations in internal homeostasis.

Breed: Out of 9 cases of pyometra, the highest incidence (44.44 %) was observed in Pomeranian (4 cases), followed by Doberman (22.22 %; 2 cases) and other breeds, viz. Cocker Spaniel, Labrador and cross (11.11 %; 1 case each). While in normal spaying, out of 8 cases, crossbreds were maximum (37.50 %; 3 cases) followed by Pomeranian (25.00 %; 2 cases), and German Shepherd, Doberman and Labrador (12.50 %; 1 case each).

Nomura *et al*. (1983), Wakankar (1993) and Dabhi and Dhami (2007) also reported the highest incidence of pyometra in Spitz (Pomeranian) breed. Sharma (2004) and Hagman *et al.* (2011), however, observed the highest cases in German Shepherd. The higher incidence of pyometra in Pomeranian and Doberman in the present study might be due to more likings and thereby population of these breeds in the region.

Parity: The incidence of pyometra was higher in nulliparous animals (77.78 %; 7 cases) as compared to primiparous bitches (22.22 %; 2 cases). In primiparous bitches no whelping problem like dystocia, retention of fetal membrane or stillbirth was noted. Out of 8 cases of normal spaying, 50 per cent bitches (4 cases) each were of nulliparous and primiparous category.

Many previous workers have reported that the nulliparous bitches have higher risk of pyometra (Nomura *et al.*, 1983; Faldyna *et al*., 2001; Sharma, 2004 and Dabhi and Dhami, 2007). The incidence of 22.22 per cent pyometra observed among parous bitches in our study was similar to the report of Niskanen and Thrusfield (1998). Borresen (1975) reported that the 80 per cent of the dogs had never whelped before the occurrence of pyometra and whelping had taken place several years ago in the remaining bitches. Hagman *et al.* (2011) studied different variables in 87 pyometra cases in dogs and found that nulliparity was significantly related with pyometra as 86 per cent cases were nulliparous, which corroborated well with the present observations.

Nature of Oestrous Cycle: Of the 9 pyometric and 8 normal bitches, 55.56 (5) and 37.50 (3) per cent had irregular oestrous cycle and 44.44 (4) and 62.50 (5) per cent had regular cycle, respectively. These findings suggest that irregularity of oestrous cycle could be a cause of pyometra in bitches. Moreover, the occurrence of last oestrus/mating was reported to be 8 to 52 weeks back in animals with irregular oestrous cycle compared to 4-8 weeks in animals with regular oestrous cycle. These findings compared well with the reports of Wakankar (1993), Faldyna *et al*. (2001) and Dabhi and Dhami (2007). However, Fidler *et al*. (1966) did not find any relationship between the nature of oestrous cycle and occurrence of pyometra.

Hormonal Therapy: Anamnesis of cases revealed that no therapy of exogenous hormones like oestrogen or progesterone was given to any of the bitches included in the study. Hence the cause of pyometra observed might be due to endogenous hormone asynchrony leading to cystic endometrial hyperplasia, which might have been invaded by vaginal flora leading to uterine infection and formation of exudates, since in the present study all the nine pyometra cases had significantly higher plasma progesterone concentration than the normal spayed bitches (Av. 11.20 ± 2.88 vs 4.10 ± 0.91 ng/ml) and upon cultural examination of uterine content they yielded either gram positive (6), gram negative (2) or mixed (1) organism, while in healthy spayed bitches the exudates were found sterile.

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REFERENCES

Arora, A. (2005). Incidence of pyometra in bitches. *Intas Polivet*, **6**(1): 103-105.

Arthur, G.H., Noakes, D.E., Pearson, H. and Parkinson, T.J. (2001). *Veterinary Reproduction and Obstetrics.* 7th edn. W.B. Saunders Co., London, p. 527.

Borresen, B. (1975). Pyometra in the dog - a pathophysiological investigation ². The pyometra syndrome, a review. *Nord. Vet. Med.,* **27**(10): 508-517.

Dabhi, D.M. and Dhami, A.J. (2007). Studies on clinico-epidemiology and surgical management of canine pyometra. *Indian J. Field Vets*., **2**(3): 11-18.

Deka, H. (2003). *Sonographical Studies and Some Pregnancy Related Changes in Bitches*. M.V.Sc. Thesis, JNKVV, Jabalpur, India.

Ettinger, S. J. and Feldman, Edward C. (1993). *Text Book of Veterinary Internal Medicine: Diseases of Dog and Cat*. 4th edn, Vol. I, W.B. Saunders Co., Philadelphia.

Faldyna, M., Laznicka, A. and Toman, M. (2001). Immunosupression in bitches with pyometra. *J. Small Anim. Pract*., **42**: 5-10.

Fidler, I.J., Brodey, R.S., Howson, A.E. and Cohen, D. (1966). Relationship of oestrus irregularity, pseudopregnancy and pregnancy to canine pyometra. *J. Am. Vet. Med. Assoc.,* **149**: 1043-1045.

Funkquist, B., Lagerstedt, A.S., Linde, C and Obel, N. (1983). Intrauterine drainage for treatment of pyometra in the bitch. *J. Vet. Med.,* A **30**: 72-80.

Hagman, R., Lagerstedta, A.S., Hedhammara, A. and Egenvallb, A. (2011). A breed-matched case-control study of potential risk-factors for canine pyometra. *Theriogenology*, **75**: 1251–1257.

Niskanen, M. and Thrusfield, M.V. (1998). Association between age, parity, hormonal therapy, breed and pyometra in Finnish dogs. *Vet. Rec*., **143**: 493-498.

Nomura, K., Masaoka, K. and Shimada, Y. (1983). A survey on clinical factors involved in the pathogenesis of canine pyometra. *J. Japan Vet. Med. Assoc.,* **36**: 310-315.

Sharma, S. (2004). *A Comparative Study on the Diagnosis and Treatment of Canine Pyometra with Special Reference to Ultrasonography*. M.V.Sc. Thesis, JNKVV, Jabalpur, India.

Wakankar, C.C. (1993). *Studies on Cystic Endometrial Hyperplasia Pyometra Complex in Canines with Special Reference to Diagnostic Methods and Surgical Treatment*. Ph. D. Thesis, Bombay Veterinary College, Bombay, India.

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